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THE REPAIR OF VENTRAL HERNIAS AND A WORD AS TO THEIR PREVENTION.

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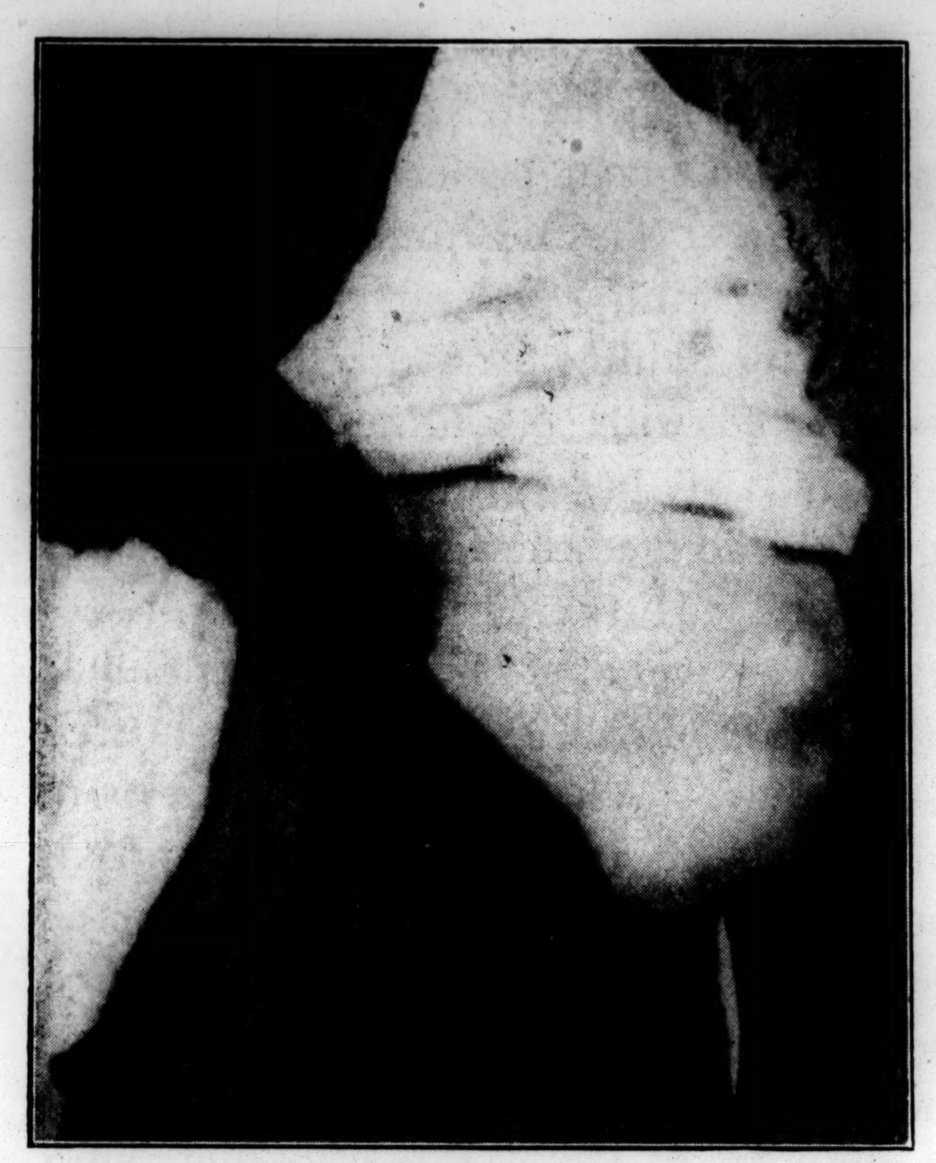
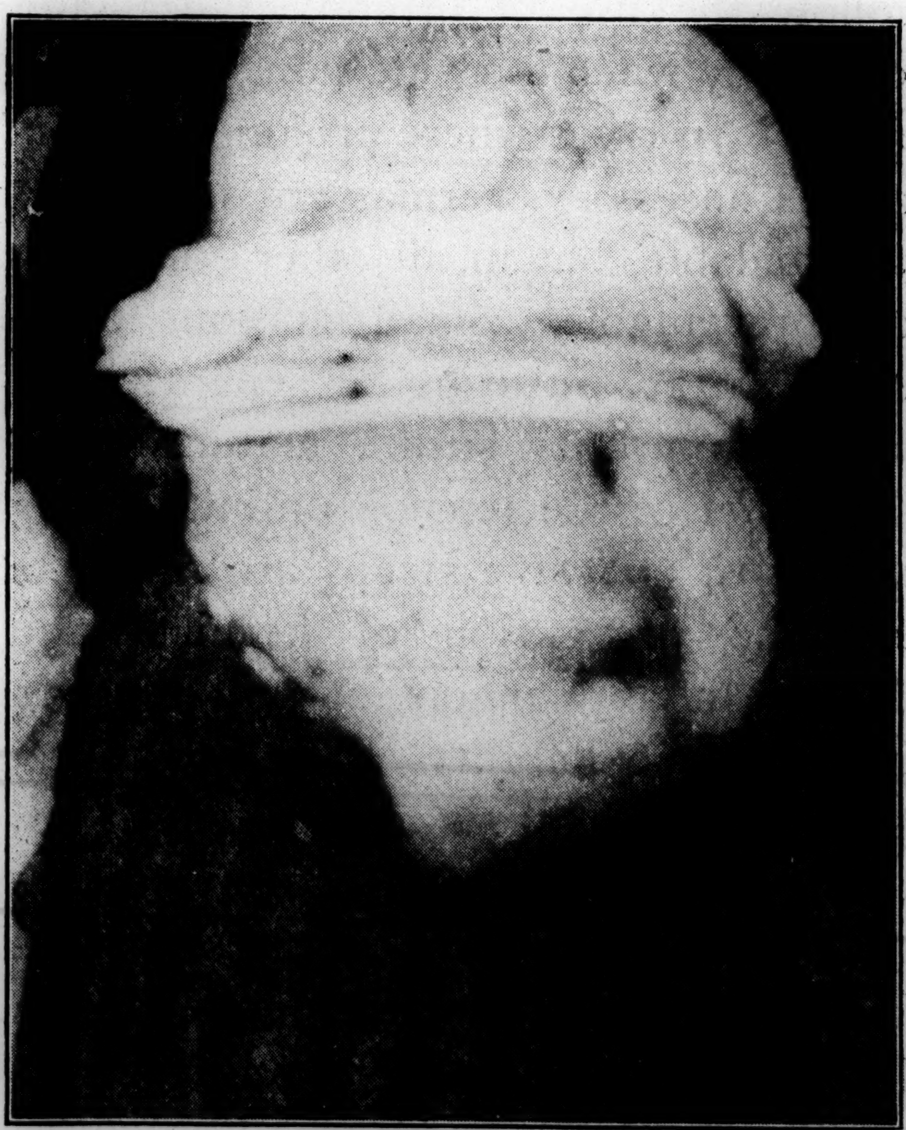
Few conditions confront the abdominal surgeon which demand more skill, and entail more work than the repair of post operative ventral hernias. Especially where there has been septic infection and sloughing of the fascia do we find it difficult to coapt the separated edges of the corresponding layers of the abdominal wall. Ventral hernias are due, as a rule, to improperly sutured fascias, or are the result of septic infection in the fascial layers, or follow the use of prolonged drainage, especially when long incisions have been made. In cases where prolonged drainage is necessary, hernias are sometimes unavoidable, but in all other conditions are preventable. Small incisions, asepsis, accurate suturing of separate layers with proper suture material, and the relief of the tension on sutures by means of adhesive straps are requisite for the prevention of hernias, and failure in any one point will tend to increase the liability. The horizontal posture for a sufficient length of time is also essential to avoid too much tension on the sutures. Cases in which the sutures in the fascia have become infected, should be subjected to secondary suture as soon as the wound is perfectly clean, and if the union takes place there will be very little likelihood of hernias. The method of suturing, which I have employed during the past eight years, and which has given perfect satisfaction, is as follows: The peritoneum is sutured with a running catgut suture, either plain, formalined, or iodized; the fascia is sutured with a continuous suture of one or two per cent chromicized catgut; the longer the incision the heavier the gut. If there are two layers of fascia, as we find above the semilunar fold of Douglas, each layer is sutured separately. When the fat layer is more than half an inch thick, it is approximated by means of a few interrupted sutures of either of the aforementioned guts. The skin is brought together with an intracutaneous silkworm gut suture, and the wound sealed with flexible collodion on two strips of gauze. The longer our incision the longer we should keep the patient in the horizontal position, because even at the end of three weeks the line of union is still so weak that it may be separated without the use of a knife, and if the incision be of considerable length, some portion is apt to give way if much intra-abdominal pressure be exerted. The position of the incision also influences the liability of hernias. I have noticed that the majority of hernias occur in cases in which the incision has been made exactly in the median line between the recti muscles or in cases in which muscles have been cut across. This is because every time the muscles act there is a tendency to pull the approximated surfaces apart. Our incisions should be made in such a manner that no muscular fibers shall be cut across; we should also avoid the linea alba especially below the umbilicus, because, in the first place it is practically impossible to split it without opening either sheath of the recti, and furthermore it will be noticed that contraction of the abdominal muscles has the tendency to cause separation in the median line, while if the incision is made in such a manner that the rectus muscle is split about a half an inch from either edge, then contraction of the muscles produces an approximation of the edges, and therefore lessens the danger of hernia.



The following case illustrates the difficulties encountered in operating on post operative ventral hernias: Mrs. B., age thirty-nine years, was operated on fourteen years ago for an accumulation of fluid in the abdominal cavity, under the supposition that it was an ovarian cyst. The surgeon opened the abdomen from the umbilicus to the pubes, and closed it by means of interrupted silkworm sutures. The abdominal wall was very thick, and the through and through sutures failed to properly approximate the fascia which was only united in spots, leaving three openings through which the intestines and omentum protruded, making a mass seven inches long, five inches wide, which projected fully six inches when the patient was standing. The mass could be partly reduced when the patient was lying down. At the upper angle a hard mass the size of a walnut was found which was painful on pressure, and which could not be reduced. The hernia had dissected the skin from the fat, and the vermicular action of the intestines could be plainly seen through the thin skin. The bulk of the herniated mass lay to the right of the median line, and when it was reduced left a large, crumpled piece of very thin skin. At the operation I made two incisions in the shape of an ellipse, so as to include the old scar and part of the loose skin. One peculiarity noticed was that even with the sharpest knife it was very difficult to cut through the skin covering the sac of the hernia. The contents of the sac were found to be omentum and intestine, both of which



were firmly adherent to the peritoneal lining of the sac, especially at the edges of the rings of which there were three. After separating the adhesions, and removing about six inches of the omentum, the intestines were reduced, and the peritoneum brought together with No. 2 iodized catgut, the continuous interrupted suture being used on account of the internal abdominal tension, due to the return of the bowel which had been out so long. The peritoneal sacs were then enucleated and required extensive dissection to separate them from the skin fascia and fat. It was found that the hernias had separated the fascia from the superimposed fat then worked around the edge of the fat and separated the skin from the fat, making a most complicated arrangement. On the right side the abdominal fat was absorbed to make room for the hernial mass. The hard nodule on top of the hernia was found to be a piece of omentum which was incarcerated and tense from congestion. The three rings were made into one large opening, and the edges trimmed evenly. The fascia was brought together with mattress sutures of No. 2 chromicized catgut, but the tension was so great that it was deemed safer to reinforce them with a continuous suture of No. 1 chromicized gut on the free edges. The abdominal fat was very unevenly distributed, and it was impossible to approximate the surfaces accurately. The skin edge on the right side was fully two inches longer than on the left, but I did not dare to cut out a piece on account of cutting off the blood supply which was none too good. I used three heavy silkworm gut retention sutures which penetrated all the coats except the peritoneum. Mattress sutures were placed which included more skin on the right side than on the left, so as to pucker the slack, and a number of interrupted sutures introduced to secure more exact coaptation. It is just three weeks since the operation, and I can still feel the ridge which is formed by the mattress sutures in the fascia, showing that I have obtained union of the surfaces as well as of the edges, making a strong abdominal wall. After removal of the skin sutures, the loose skin of the right side was very much puckered, but as it is firmly adherent to the surface under, it will eventually smooth out. Had this case been operated on sooner, many of the difficulties encountered would have been avoided.

BIOMECHANICAL LAWS IN MEDICINE.

By Moriz Benedikt, Professor of Neurology, University of Vienna.

THE BIOMECHANICS OF CELL LIFE.

(Concluded.)

I first enunciated the law of the double conducting power of nerves at the Congress in Moscow, in 1897. The fact that in the posterior roots centrifugal impulses for the dilatation of the blood-vessels are transmitted has already furnished one contradiction of Bell's law. The physiological analysis of the phenomena of tabes compelled me to assume, even forty years ago, that there occurs in the posterior roots a centrifugal nerve conduction whose loss creates the ataxia of tabes. Both these centrifugal impulses in the posterior roots could be transmitted in fibers within the nerve fibers, unknown to medical science and not isolated. I was forced to the necessity of the double conductivity of the same nerve fibers, by the impossibility of otherwise explaining the action of the brain. We see, for example, that ideas are formed from single observations, and are combined through association fibers. A body of ideas arising that contains only a part of the combining impressions arouses again, on the other hand, the memory of the separate observations. In the same way, ideas are often united with quite accidental simultaneous observation, and the ideas, when aroused, call forth the latter, or vice versa. For example, a person whom we met in a certain locality can call forth the memory of the locality and vice versa. That there are double conducting fibers, the association fibers, is certain. A second elementary proof of the double conductivity is the fact that, upon irritation of the nerve, the electrotonic condition spreads in both directions. If, then, this double conducting power is thereby demonstrated, it would be absurd to suppose that nature had created this power, without availing herself of its use. That the nervous system is the most complete telegraphic system is certain; it would therefore be strange to suppose that the paths of conduction created by nature were less serviceable than those created by art. Bell's law remains true in its positive assertions. Sensation and reflex irritation are transmitted through the posterior roots, and the excitation of the muscular contraction through the anterior roots. But that other nerve impulses, unknown in his time, could pass though both roots, and that, too, in opposite directions, is not denied by Bell's law. Of course, this could be possible even with the retention of the idea that nerve fibers conduct only in one direction. We would then have to assume that certain nerve fibers of the same nerve conduct centrally and the others peripherally. The other possibility is that the same fibers conduct in both directions. In the case of the heart, of many unstriped muscles, and of the glands, we are acquainted with stimulating and inhibitory irritations that pass through separate nerves. But the same organs—at least in diseased conditions—give rise to impulses that are transmitted to the nervous system. These impulses must be transmitted through either the one or the other of the two paths of approach. Hence one of these must be a path that leads in both directions. There are certain facts that confirm the two propositions that I have sought to demonstrate, viz., that there is a connection between the nervous system and every change occurring in the cells, and that nerve fibers conduct in both directions. I will here cite a few such facts. When, thirty years ago, I studied the nerves of the plexus choroid inf., I was surprised by the abundance of vessels and nerve fibers and of ganglionic cells that were found there. The nerves approach the vessels and end in the endothelial cells. Their ends are in the closest relation to these cells. We must conclude that the plexus, like the cells of the meninges, are organs for the secretion of the cerebro-spinal fluid, intended to regulate the pressure upon the brain. They secrete fluid when the pressure diminishes; when it rises, the fluid is absorbed. The nerves of the cells therefore excite, on the one hand, the secretion of the cells, and that at least partly in consequence of the fact that the diminution of the pressure acts as an irritant through the reflex path. On the other hand, they terminate reflexly in the circulation. Besides the nerves of the vessels, therefore, there pass through these nerves ascending and descending paths. Unless we are to deny that now and then hydrocephalus externus and internus arises from morbid irritation, and then presses on the brain, we must look upon it as the expression of diminishing brain pressure. We know, however, that as a rule the opposite claim is absurdly made. On the other hand, facts compel us to seek for so abundant a nerve supply, where till now it has not been thoroughly recognized, namely, in the endothelial layer of the vessels, and to them hitherto has been ascribed only the power of conducting impulses away. From the similar results of experiments of Richardson and Brucke, we concluded that the endothelial cells represent a great, flat gland that secretes material into the blood that prevents its coagulation, and therefore in short furnishes ammonia. But a complicated nervous mechanism is needed for this purpose. If the alkalinity of the blood is endangered by occurrences anywhere within the body, then from this place must be sent an impulse to the endothelial glands spread over the large surface. Hence the nerves of the endothelium are nerves that carry impulses to the glands which they constitute. There can be no doubt that they also carry impulses away, and the purpose in health is doubtless to announce to the gland center the condition of the blood's alkalinity. That other alkalies, especially calcium, are given off to the blood by the endothelial gland is shown by the tendency of the blood-vessels to undergo calcification. Moreover, if this precipitation or deposit has once set in, if the intima has degenerated, and if in this way the function of the endothelial layer has become disturbed, I believe, on the other hand, that the deposit can occasion a degenerative irritation of the intima. We now understand how a life of excessive activity, or a nervous shock, can occasion or hasten calcification. The desire for calcium salts seen in cases of chlorosis is also doubtless occasioned by the endothelial nerves.

II. (c) *The Distant Action of the Nerves in the Biomechanics of Growth.*—Here is to be discussed only the interesting relation of the adaptation of the growth of the coverings to that of the covered inner organs. Does the nervous system as an arrangement for distant action, play a role in this adaptation? The question may also be thus expressed: Does the impulse to growth in the covered organs act upon the coverings through the nerves in such a manner that the inner irritation starts upon a nerve path an irritation to growth of the surface? Consider this question in relation to the brain and the skull, and to the influence of the growth of the internal organs on the skin. I was led to consider this by clinical observations, which suggested the question, What happens when, in place of the stimulus to growth, a morbid stimulus appears? In case of disease within the brain, we observe headache, having the character of superficial headache, and as a rule associated with sensitiveness to pressure and percussion. We have therefore a projection of the inner irritation upon the surface. It is natural that the stimulus to growth should also be projected to the surface by this path, and should cause the proper adaptation of the bony case of its contents. The same nerves, however, conduct irritation from the surface to the interior. They therefore contain paths leading in both directions. We observe similar projections through the cutaneous nerves in case of disease of the internal organs. Most instructive are those projections whose importance was long overestimated (as spinal irritation), until they were relegated to their proper rank by the investigation of Turk. This sensibility, which is projected outward, and which occurs in the nerves that we have regarded as leading only inwards, and not outwards, has, however, received still another significance through these investigations. Turk has shown that pressure upon these points has an influence on the morbid phenomena of the organs whose disease has projected the sensibility outward. This mutual projection has long been recognized by empirics, and thence arose the method of treatment by so-called counter-irritation. Most of them found the places from which alone such counter-irritation is successful. All these facts show us nerve paths, through which the growth impulse acts upon the surface, always upon paths that we have hitherto regarded as leading in only one direction.

III. THE TROPHIC NEUROSIS.

The propositions of the influence of the nerves on all vital manifestations in the cell, and of the double conductivity of nerves, have also at one stroke explained trophic neuroses. It is now generally recognized that vaso-motor neuroses, especially simple irritative or destructive conditions, can not explain trophic neuroses. There must always be in addition an irritation of the tissues, originating in the nervous system, acting like other local irritations, in order to develop a trophic neurosis. If we consider the separate vital manifestations of the cells from the point of view of our first proposition, we strike at once upon the possible influence on growth. Complete or tardy growth depends upon the influence of the nerves. Next, under our presupposition, the multiplication of cells will be influenced. Excessive or diminished fertility or barrenness can be the result of nerve impressions, and that not merely during the period of growth of the organism, but during the whole life. A morbid irritation can cause excessive growth; and as the irritation is one that differs from that in health, the number and the properties of the new formation can be one that departs from the normal type. The nervous irritation in the tissues will, however, press into service the lymph and its nerve supply, just as if the irritation issued directly from the cells. We have, then, before us cellular pathology incited by nerve irritation. We must not again unroll the picture of all other influences of the nervous system on the cells to show how great the nutritive changes that they may produce. A great many of these cases, however, are comprehensible only when we invoke the principle of double conductivity. The section on distant action in health can not be concluded without mention of the distant action of the whole organism on the spermatozoon and the ovum. Besides the inherited peculiarities, there must be considered countless, one might say, biographical circumstances. Here belongs the absolute and relative age, the condition of the parents' health, and especially of the mother in the pregnant state and in the period of lactation, the condition of the procreative power of the father, etc. We know, however, that the special condition,—the congenital and the acquired,—of every organ, especially of the brain and of the whole nervous system, has an influence. There occur, therefore, countless distant actions in the origin of the semen and the ovum, and these distant actions are accomplished on the one hand by the exceedingly varied composition of the blood serum, with its world of cell flakes, and on the other by the transmission of countless impulses from all cells of the body through the nerves to the parent cells of the spermatozoon and the ovums.

IV. *Morbid Distant Action without*

the Central Nervous System.—It must have occurred to one who knows the structure of the central nervous system that it furnishes phenomena of isolated conduction, and that general diffusion is not the rule. The possibility of isolated conduction depends on the fact that certain nerves can carry only certain stimulations, and those only in certain directions. There is, so to speak, an accord between the irritation and the conduction. We must now inquire whether in the case of morbid irritations there are other conditions of transmission than in health. I suggested this question forty years ago, in the study of symptomatic papillitis of the optic nerve, which is so common in disease of the brain. It was clear to me from the first that theories of extension or of pressure were false; that this was an instance of distant action through an unknown mechanism, since this consequence occurred without any evidence of contiguity or continuity, and in many cases also without special physiological connection. The occurrence of symptomatic papillitis is, however, not an exceptional matter. In brain disease, we see other similar extensions without contiguity, and without known physiological connection, therefore a transfer of the process through an unknown means. Of especial interest are these extensions of new formations, in which the later morbid processes represent a different anatomical process from the original. And among these processes of extension, which again are partly independent of continuity and physiological connection, those that interest us especially are the foci of softening. We may lay down the proposition that morbid irritants do not obey the law of physiological direction; they can make their way in all directions. We may further deduce this conclusion from the facts that not all places reached by the irritation develop symptoms of disease, but that only certain paths and spots are susceptible to the irritation, and these are affected though they had been acted upon by a local irritant. Without the proposition of the double conductivity of the nerves, all these facts are incomprehensible. The proposition is especially useful in the comprehension of the manifold mysteries and paradoxical phenomena of hysteria. In accord with Charcot, I have designated hysteria as excessive susceptibility to shock on the part of the nervous system; and in the transmission of the irritation we have not to do with special irritations, but with special paths and extensions. With the aid of the double conductivity of the nerves and of the altered power of transmission, in consequence of the increased susceptibility to shock, it becomes clear to us how there occurs the projection of sensory irritations, of circulatory disturbances, even to the appearance of stigmata, and of convulsions, proceeding from the centers of the imagination and the will. It becomes just as clear that imagination and the will originated shocks that result in anesthesia and paralysis. The unusual susceptibility to shock also causes irritations to branch off into paths that they can not enter in the physiological condition. Moreover, not only irritations that arise in the mind, but also all that spring up in any part of the body, show these paradoxical extensions. The susceptibility to shock on the part of the nerves may be provoked on those with no special susceptibility, by unusual psychic or mechanical shock, and there may in consequence arise, for example, traumatic hysteria with all its paradoxes. Hypochondria also depends, on the one hand, on increased general sensory irritability and an increased power of conduction in the nerves, which causes a remarkable spread of the irritation; and on the other hand, on the power of projection of the irritation from the imagination to the various parts of the body.

V. *The Question of the Neurones.*—Gall is the real creator of the neurone doctrine. He had a clear idea that the nerves ended in the gray matter, and there, so to speak, new ones arose. With the subsequent aid of the microscope came the view that the nerve fibers entered the cells and emerged at another place. The ganglionic cells were regarded, so to speak, as swellings around the nuclei of the nerve fibers. But this was unsatisfactory to the physiologist, the clinician, and the psychologist. The physiologist and clinician knew of extensions of irritation from one nerve to the most varied sites of cells; the clinician knew of the coordinative and associative neuroses in which occur union and separation of stimuli; and the psychologist especially needed an anatomical basis for the most far-reaching associations, that is, of connections and unions of the irritation elements. Gerlach, the real discoverer of the neurone, made his first contribution in 1867. He demonstrated his faultless neurone preparations from the cord, and there was no longer a doubt that here was a satisfactory general theory of the relation of the nerves and the cells. Hence it became clear how the irritation of one nerve could be transmitted to many cells, and vice versa. Since then I have thought in neurones, and I conceived the transfer mechanically, without direct connection, as a leaping across, as in the case of frictional electricity, in which the giver and receiver partook also of the role of accumulators, while through this arrangement the irritation had to wait for the accumulation of a certain charge before it could leap across. For a time the scientific conscience was disturbed by the announcement of Max Schultze that the ganglionic cells were really a plexus of nerve fibers. These doubts were set at rest by Golgi's discoveries. But since the work of Apathy, that is no longer possible. Personally I was not much disturbed by either Schultze or Apathy. I will not accept a conclusion unless all the acts are in harmony therewith. No fact, especially no anatomical fact, should be ignored because it does not fit in with the theory. Therefore I said to myself, if the doctrine of Apathy is correct, and is, however, incomprehensible to us, then we must wait till our understanding and our knowledge are ripe for it; and we must in the meantime without prejudice arrange our experience and our discoveries clearly with the consciousness that the discovery is incomplete. Fortunately things are not so bad. If the doctrine of Gerlach and Golgi is correct, the transmissions and unions take place according to the principle of the transmission of frictional electricity, from free points and surfaces. If Schultze and Apathy are right, then these occur according to the principle of transmission through induction. We can await the result of the conflict.

SOME GENERAL BIOLOGICAL LAWS.

VI. (a) *The Principle of the Vital Manifestations.*—In the first place, what exerts a controlling influence in the origin and nature of every vital manifestation is the congenital disposition, the peculiar nature of the individual. Without this disposition, and contrary to it, there is no development possible. Alongside of this disposition of nature are arrayed those influences that most powerfully affect the development, those influences that Volkman has designated as "second nature." These include the controlling moral view of things, prevailing economical and social conditions, the whole education, the physical environments, etc. These are almost as powerful as nature itself. Besides these, there are, thirdly, other less powerful factors of development, and, fourthly, occasional influences. If now we designate every vital manifestation as M, the disposition or nature as N, the "second nature" as N′, the less powerful factors in development as E, and the occasional ones as O, then we must say every psychic manifestation, whether it originate in the field of the intellect, of moral or artistic feeling, of the will, or of conduct, is dependent on or is a function of N, N′, E, and O; and as a matter of fact, each of these factors may aid or inhibit; i. e., they may each be positive or negative. In mathematical form, the equation is as follows: $M = f(N, N', E, O)$. I introduced this line of thought into medicine. Gradually I recognized the fact that this formula ruled the whole organic world, every organism, every organ, every cell, and, in fact, all relations of growth, all actions, the causes and the course of diseases, birth, and death. We would have recognized this from the beginning had we clearly perceived that the controlling laws of psychic manifestations are just the same as those that control all vital manifestations. How important it is that every physician should constantly bear in mind that this formula is demonstrated by every page of the history of therapeutics! Let us but call to mind how absurd, upon the first acquisition of bacteriological knowledge, and how contradictory, despite all fruits of logic already won for medicine, became the etiology of zymotic diseases. It was completely forgotten that, even with the most powerful poisons, predisposition plays an important part; that, for example, man is instantly killed by a small quantity of cyanide of potash, while an elephant requires two and a half kilograms as a fatal dose. How much nonsense would not have been uttered about the danger of infection by Koch's tubercle bacillus had we, in accordance with the above formula, given attention to the congenital predisposition, the second nature, through previous diseases, bad habits, poor dwelling, etc. The above formula should be well known to every doctor as a confession of faith.

VI. (b) *The Biomechanical Minimum Law.*—This is as follows: Nature attains her purpose at the expenditure of the least force, time, and space, and with the least use of the most appropriate material in the most appropriate positions. To every scientist this law had the force of an axiom.

VI. (c) *The Biomechanical Law of Luxury.*—The axiom just given seems at first thought to be as self-evident as erroneous. If we consider the mighty muscle of the heart, and see how little yielding are its contractions; if we compare the expansion of the lungs in attack of dyspnea with that in ordinary respiration; if we compare the ordinary action of the digestive glands with that in a poor, starving wretch, or the action of the kidneys with and without the use of alcohol; if we compare the mind's action in times of excitement with that in times of relaxation, then we must agree that life and its actions are framed in opposition to the minimum law, with an excess of material and force, i. e., according to the principle of luxury. Upon due consideration, however, we soon recognize the value and the meaning of this apparent luxury. Actions in life are more or less creatures of time, and the supply of material and strength must be able to outlast them. We have already seen how the struggle of the sustaining strength against the waste material gives rise to fatigue, and we have seen that inhibitory nerves aid this victory of self-preservation. This is true not only of acts of mind and nerve and muscle, but of all acts down to the cell. The sense of weariness and various feelings of discomfort are further safety-valves for the perpetuation of life. Without the arrangement for "luxury," life could not continue. The axiom given is true for all life; the contradiction to it is only apparent. The fact of the use of a part on every occasion leads to a further question. We have here two alternatives. Either all the parts involved in a function work with only a part of their substance, or there is a layer involved in the work; i. e., at each moment of work, only a part of the elements concerned, namely, those on the surface, are used. Doubtless both forms occur. In the work of the cells, the question arises whether the whole cell or only "lateral chains" participate in the work. This question is very involved in the work of the cells. Every cell certainly consists of a great number of different groups of atoms, having a certain independence of function and of renewal. It is just as probable that atom groups of like kind are not heaped up separately by themselves, but are scattered through the cell. In work involving a layer of the cells, therefore, groups of different kinds can be called into action, or those of the same kind, but always only a part of either; the same arrangement may play a part in the nutrition of the cells. The question is still more distinct in the case of the muscles. In muscular work, do all the elements take a relatively equal part, or does nature use a long muscle like a short one, and a wide one like a narrow one? The independence of the innervation for the voluntary contraction of muscles (height of action) and of the lifting power in the physiological formula h. m. t. speak in support of the principle of work in layers, and Henneberg has proven this in the case of the muscular apparatus. In consequence of such layer-like muscular action, the respiratory surface of the lungs is called into play in part or is expanded to greater extent; and likewise the fact that generally there is only a partial filling of the capillary network of blood-vessels evidences a layer-like action in their work of nutrition and excretion. That there is only a part of the elements involved in brain work is easily recognized.

VII. *The Biomechanics of Growth.* —Growth is a progress in space, therefore a movement. This movement is, however, not one that is merely the result of the power of the cells; it depends much more upon other varied influences. It is, therefore, in the sense of the mechanics, a virtual one. Thus it is influenced by the weight and also in many living organisms by warmth and light. But of most importance are the adaptation of growth to the nourishing lymph stream, the connection of the parts of the body with one another, and their adoption to their functions.

As examples may be cited the development of the cortex of the brain in relation to the centripetal and centrifugal nerves, the branching of the bronchial tubes to the respiratory surface, the growth of the vessels in relation to the organs they supply, etc. Function and growth are closely united, as already demonstrated by Roux and Julius Wolff.

We will next present here the principal forms of growths that spring from these involved productive and inhibitory forces. In the prevailing growth in one direction we see as a rule that the axis bends, and as the growth progresses, there are produced a series of bends that may lie in different planes. Besides circular arcs, there arise also doubtless parabolic, perhaps also elliptical and others. At any rate, we are concerned here with strict geometrical laws. The lines of direction of growth may also divide, and this may occur many times at certain points and within certain planes and at different levels. Thus occurs branching. In cylindrical forms, with different diameters for the cross section, separate parts may assume different axes in the formation of branches and twigs in the vegetable world. These parts with secondary axes may in the struggle for existence destroy neighboring parts, as is seen in the old olive tree, and especially in the death of the lower branches, e. g., in pines. In the animal world we see such a division of the axis, e. g., in the outgrowth of the cord, the cylindrical adjunct of the brain. We see the hollow axis separate at once in two directions towards the brain, and grow out into the most varied curves and planes, represented by the cavities of the brain. The fundamental form of the section of living bodies is mainly that of a sphere or its extension, its growth. This proceeds mainly in such a way that from parts of the surfaces of curved portions new curves arise, this occurring from most of the parts, and in great numbers, so that the original curves, so to speak, exhibit several grades or arching projections. Under this condition, naturally most living forms, not cylindrical, are curved, bladder-like bodies, and they grow by protruding arches of new bladder-like forms in most varied grades, following upon one another. The cylindrical bodies likewise have usually a many-curved circumference, as is seen most clearly in the section of a tree with its many rings; and many cylindrical forms have a bladder-like end with many waves. The latter is best shown in the ends of the bones, and therefore, as I have pointed out, and as is so clearly seen in X-ray pictures of the joints, the joints represent cogwheel contrivances to facilitate movement, in which the opposed cog and socket correspond with each other. The movement of the joints at each movement takes place only in one cog, and proceeds from cog to cog. The law of spherical circumference is also very well shown in some plants. The corners in these have the appearance of column-like edges and the surfaces between the corners that of a concave arch. It is not accidental that cornered is with us synonymous with ugly, and that we consider that which is curved beautiful. This is but the reflection of our psychic mirror that receives and reflects the pictures of nature. I was not a little surprised, at first in my studies of skulls, and later in those of the circumferences of the long bones and the surface of joints, to find that these surface curves and bladder-like formations obeyed strict geometrical laws, and that all edges and depressions arose from the junction of curves, and that every section exhibits a certain number of curves. The invariable law produces a number of curves in the completed organ. The radii of the arcs, their lengths, the inclination of the chords, and the position of the center, all vary. Hence, instead of curves, straight lines may also appear; and concave curves may in other individuals be convex. With this variability, nature attains its limitless variety with the retention of its fundamental laws. Hitherto I have found only curves as bounding lines; many of these probably belong to different forms of curves. When this study of the form of the living body has once become a science, we will also learn the formula of the forms of organs. When once, in a scientific gathering, I remarked that

I considered it a high aim of scientific research to find the true curve of rotation of a sausage, the audience laughed, and a prominent clinician laughed loudest. My colleagues did not see that their laughing was a biting satire on their scientific simplicity. The task here mentioned is an unusually complicated one, although it represents only a part of the task of finding the rotation formula of the intestine, and that, too, only at its maximum distention. There are much simpler tasks in the world. In the vegetable world are, for example, fruits, whose mathematical computation forms a rich field. In the animal world are, for example, eggs. Many parts of the body, like the kidneys, furnish similar problems. These strictly mathematical laws of form,—those of mathematical morphology,—must indeed lead to the exciting forces and the opposing forces, and therefore to a scientific doctrine of the dynamics of growth. Elsewhere I have given the method of reasoning and the technique by which we may attain a mathematical doctrine of the forms in the organic world; this met with no approval, I am sorry to say. Only in France has the significance of these studies been recognized by Binet. Strictly scientific biology and medicine, that is, such as are subject to mathematical law, will be attained only when these teachings are incorporated in methods of education. Then thought will be exact in medicine. As I have said, we must in our morphological study of every living form seek the natural axis and plane; and we are aided in this by the action of these forms and their natural position in the body and in space. We must not only determine these lines and surfaces distinctly, but we must also draw them on the part studied, in order that they may be exactly measured and studied geometrically. Another important biomechanical question of growth is the harmony of the growth of different parts. In a former section, I explained the influence of the nervous system on growth between the coverings and the covered organs. At another point I called attention to the fact that, with the aid of changes of the internal substance, there arise certain relations of nutrition and irritation, which influence growth. The harmony of growth is also maintained by the fact that all parts of the body originate from a like common condition of the egg, and this itself produces a certain harmony. The mutual correspondence of the different parts of the body presents another biomechanical element, since function and growth stand in close relationship. If we study the relative proportions in a given moment, for example, of age, in different individuals, we find that every part has a mathematical boundary above and below. These boundaries represent the unalterable province of the individual. But here is also demonstrated that the absolute size of separate parts closely limits the movements of the other parts, and thus from a small number of limits, with ever closer approach, the determination of the limits of other parts can be settled. Great artists were the first to recognize these laws, and Leonardo da Vinci and Albrecht Durer have attempted to formulate them, while distinguished scientists like Harless, Betz, Liharzik, and others, have followed them. This correspondence of the parts brings about the beauty of the human and animal form; departures from it are the basis of caricature or of tragical quality. Not less interesting biomechanically is it that the growth of the parts in different epochs of life also is according to strictly arithmetical laws, as Liharzik has proved in his important but forgotten work. I will here quote a few things from his work in reference to the law of growth: "The law of human growth can be stated in the following propositions: 1. The whole growth of all the parts of the body is accomplished in 24 epochs, that end in 25 years. 2. The first solar month after birth forms the first epoch. Every epoch following is one month longer than that immediately preceding, so that the second epoch is 2 solar months long, the third 3, the twelfth 12, and the twenty-fourth 24. All the epochs together amount to 300 solar months. 3. These 24 epochs appear to be divided into 3 sections. The first section contains 6 epochs, namely, the time from birth to the completion of the twenty-first month; the second section includes the following 12 epochs, from the twenty-first month to the one hundred and seventy-first month; the third finally contains the last 6 epochs, from the one hundred and seventy-first month to the end of the growth, that is, to the end of the three hundredth month. 4. These 3 sections have the peculiarity that all epochs that lie in one and the same section exhibit an equal growth. 5. The increase in the 3 sections is, however, unequal, inasmuch as the first shows the greatest growth, while the second shows a relatively smaller growth, and the third a growth that is the smallest for some parts of the body, and greater than the second for others. There are many additional interesting things concerning the doctrine of proportions that might be here mentioned." From all, it is manifest that the forms of living things are controlled by strictly geometrical and mathematical principles, and that Newton's law that nothing except geometry controls nature is true also in biology.

VIII. *The Biomechanics of the Blood Current.*—At the time of the great mechanical school, about the middle of the last century, the vessels were considered as elastic tubes. If we consider the vascular system, we find the following elementary properties: The vessels differ above all from a close, impermeable system of tubes in the facts that in one place, especially in the capillaries, they are permeable, that they can not contain any space filled with air, and that their cross section at any point is capable of increase or diminution in size. Furthermore, there is no artificial system of tubes so constructed that the stream, after forcing its way through a fine network of vessels, collects again in one bed, in which the current is no longer maintained by a vis a tergo, but through a suction pump,—the ventricle. The blood-vessels differ from open channels in the fact that they are closed. They have, however, the common property of variability in their cross section, which is imparted to the blood-vessels by their elastic walls and their muscular coat. The biomechanics of the circulation of the blood shows in the arteries a kind of flood-gate, since the caliber may be changed in many ways. The placing of these flood-gates in action occurs through a peculiar neuro-muscular arrangement that possesses the significance of a local heart, especially with reference to the vessels belonging to the separate organs. The conditions of the current in the capillaries are again very varied. It has been shown by means of injected tissues that the capacity of the single network is so enormous that, as Carl Ludwig has stated, the organism can bleed to death into an organ. On the other hand, these preparations have shown that the form of these vessels and their arrangement in each organ is so characteristic that from each preparation we may recognize the organ without other marks of distinction. This fact is of importance not only in relation to the condition of the current and the pressure in the network, but it also to a certain degree alters the condition of the current posteriorly, and likewise in the beginning of the veins. As in open channels with permeable shores the surrounding earth becomes saturated, so also the capillary system—and that is its function—gives off fluids to the tissues. This yield depends on the forms of network and on their fulness, furthermore on lateral pressure and on the rapidity of the current. All these circumstances alter the conditions of the permeability. But there can be no doubt that the wall of the capillaries itself possesses a different degree of osmotic power in each network, in order to render certain, under all the other mentioned variable circumstances, the peculiar composition of the osmotic fluid. In other words, we must assume that the feeding of the tissues depends not only, other things being equal, on the peculiar form of the single capillary and the form of the network, but also on the property of the walls themselves. The property varies, and can reach such a height, as in the vessels of the spleen, that we are uncertain whether to regard the vessels as open. But the most important force for the yielding of fluid from the capillaries is the attractive force of the tissues; these therefore represent another kind of suction pump for the blood current. The condition of irritation of the tissue can, however, on its side alter the rapidity of the current, especially through a change in the lateral pressure; and this may under certain circumstances become directly visible by the movement of the formed elements. There is no doubt that, even under ordinary conditions, the formed elements of the blood pass through the walls of the capillaries into the tissues; this is so in high degree in conditions of irritation of the tissues. Is this occurrence the result of increased lateral pressure in the blood current? Is it a result of increased and diverging activity of the blood elements? or in other words are these elements washed out, or do they wander out of themselves? It seems certain to me that the occurrence is not the result of forces active in the blood and in its elements, but the result of the attractive forces of the tissues. I will here suggest some questions, without seeking an answer. We do not associate exosmosis with this direct endosmosis, accompanied by these countless local bleedings from the finest vessels into the tissues. Is this generally justifiable, and is it correct, especially in organs of excretion? Is there no retro-imbibition into the blood-vessels, and no return to the tissues of that which has been given out? We are accustomed to assume that all additions to the blood, except oxygen, come through the lymphatic system, and to answer the above in the negative. Is this right? Another question suggests itself. It is impossible that all the capillaries always contain only very fine streams of blood. The majority must be empty, and their walls must therefore touch. But we know that the perpetuation of a living form depends on the continuance of its function. We must here assume an alternative work, to which the capillaries can be rapidly called. As to how this occurs, we have no knowledge. If the question of local hearts and the peculiar arrangement of the blood-vessels makes the biomechanics of the circulation appear as an involved problem this becomes clearer the further we pursue the question of the local hearts, in the light of experience in cases of sickness, especially if we hold fast to the fundamental fact that most questions of functions of organs are touched upon most closely during diseased conditions.

It was by observation of the carotid in ti: doulerueux that I was occasioned to approach the subject of the action of the local hearts. It was seen that in individual cases during the attack the carotid expanded and pulsated violently, and the face became very red. In other cases, the carotid became threadlike, and the face became cyanotic. Once, through the expansion of the openings of the branches, the carotid became bead-formed. The change in the activity of the local hearts was here very clear. This experience alone must lead to the principle of multiple examination of the pulse, which I advocated first in 1874. There were some interesting cases of spasm in the greater arteries, followed by pulselessness, and it was these that occasioned that contribution. It was discovered by this multiple examination of the pulse that the pulses in the same arteries of both sides in general were not equal, and that there is a definite relation of these differences between different arteries. For example, a smaller pulse in the radial of one side corresponds to a fuller pulse of the carotid of the same side, and vice versa. A change of this relationship has usually a grave prognostic significance. Excessive fulness of the carotid and radial of one side denotes an apoplectic condition. So, for example, an equally full pulse of both carotids and both radials induced me to examine both crurals, and their pulse was found almost imperceptible. With the return of the pulse in the crurals, the relations in the other arteries became normal. The multiple examination of the pulse therefore gave the impression that blood pressure in health is different in such artery, and that this relation is subject to many changes in disease. The idea was confirmed by years of investigation pursued with Professor Von Basch. It was shown that the blood pressure in both radials was different, and likewise in both temporals, and that the pressure in the latter differs also from that in the radials. These facts, however, show what a thoughtful student of hydrodynamics really should have known from the outset, that in every artery there prevails a peculiar pressure, and that one is not justified in drawing conclusions as to the general blood pressure from the measurement in one artery. In biology there are too many hydrostatic relations confused with hydrodynamics. Let it be observed here that in the question of the suppressibility of the pulse by pressure of the finger there are three different factors concerned: (1) The lateral pressure; (2) the pressure of the current; (3) the pressure that even with the empty, elastic vessel must be used to close its lumen. If we wish to form an estimate of the division of the current pressure and the lateral pressure in the different vessels, we must compare it with a stream that divides into several branches. The current in the several branches is then proportionate to the resistance. The strength of the current is greatest where there is the least resistance. If the pressure rises in one arm, there is no essential increase in the main current, and least at a greater distance upstream; but the flow towards the other branches becomes much the greater. In open channels, the increased pressure from narrowing in one place leads to increased lateral pressure and to tension upstream and to an elevation of the level. As the vessels are also expansible, an increased pressure in a definite portion of the vascular system will cause an expansion of the vessels posteriorly and an increase of lateral pressure; but the whole of the current posteriorly will not be affected. Another result will be that the current will show a tendency to force itself with greater strength into others of the nearest branches. We will see later that this equalization in the circulation is more involved than in open channels, because possibly the nearest branches resist this equalization with the aid of their muscles. From these considerations, it follows that the condition of the blood pressure of a vessel gives no general index to the whole pressure and the pressure in other vessels. There may be high pressure in one vessel while in others or in all others there is low pressure. If there were not this manifold quality of the pressure relation, there would be no possibility of a functional distention with blood in the organs at the time of their increased activity. Nature provides for this necessity by the expansion of the muscles in the organs involved and contraction in the vessels of the organs at rest. In our clinical measurements, the compressibility of the vessels is considered. A vessel that is narrowed by muscular or elastic means will, other things being equal, offer greater resistance to compression than a relaxed vessel. How, then, when a vessel becomes hard from calcification? In the latter case another condition cooperates to furnish high pressure. In compressing the pulse in health, as already shown, we overcome only the elastic resistance of the wall of the vessel upstream. But if this wall is hard, then we press the blood current against the main current, and then are dealing with the main current. If the pressure in the diseased vessels were really as great as we assume in the calcification of the arteries, then there would be constant danger of rupture of the brittle walls. Only when the blood pressure rises in all or in very extensive vascular areas is the general blood pressure raised; and this would lead to a dilation of the heart, if the heart muscle had not the property of beating more powerfully, in consequence of a greater pressure being exerted upon it. The involved nervous apparatus then also becomes active in carrying to the heart impulses that increase its activity. Naturally an increased pressure on the part of the heart does not act equally on the vessels. The pressure in each vessel is then due to two factors, a local and a general one, and as long as we can not separate these two factors in one vessel, a general conclusion derived from the examination of one vessel is untrustworthy. Only when the pressure in a series of vessels is similarly changed may we infer the central pressure, and even then it must be shown whether the change of the central pressure proceeds originally from the heart or from the vessels. That the determination of blood pressure by the finger is worthless should be evident from the work of Basch, since a wide or distended vessel and a narrow or contracted one with equal pressure produces a very different impression. Yet we see clinicians make accurate estimates of blood pressure by the finger. It would be a mistake to employ the simile of a branching current as an exact counterpart of what occurs in the circulation of the blood. The equalizations do not always occur according to the simple hydrodynamic laws, but often, as seen at the bedside, in the path of the reflex of the local heart, and in that of impression on the heart itself, and often on very distant vessels. All so-called derivative congestions in therapeutics act on the principle of equalization of blood pressure between distant points by the aid of the nervous system. A very interesting phenomenon is the equalization of pressure in a congested area by the reflex contraction of a large supplying vessel.

Thus in severe congestion of the brain the carotid contracts.

We come now to the biomechanics of the heart's action and of its movement. In the very first use of the X-ray, I at once recognized that the doctrine of Gutbrod-Skoda, that the apex of the heart moves downward and to the left in systole, is incorrect. It moves much more to the right and upwards, as Kornitzer believed. The X-ray also showed that the contraction is a very small one, and that the work of the heart muscles is therefore a "work of layers." The action of the heart's apex is that of the hydraulic ram, by means of which a powerful shock is occasioned when a stream cuts off its path by the closure of its outlet. But this occurs in the first moment of systole, since the ventricle is closed by the contraction. The opening of the valves of both large arteries plays no part in the apex beat. Their opening does not occur suddenly, and occurs later than the closing of the other valves, while the perpendicular on their plane does not agree with the axis of the heart's compression, but forms an angle with it. The systolic pulsations that are seen over the whole surface of the heart, especially in hypertrophy, originate in the swelling produced by contraction. The rare diastolic pulsations are produced by the contraction of an hypertrophied ventricle. The twisting of the heart, as was shown by Kornitzer, depends in a sense on the stretching of the arch of the aorta, upon the contraction of the heart, and the opposite motion, on the return of the arch to its former shape during the heart's relaxation. As the different portions of this arch lie in different planes, there occur twistings of the heart in three directions. The arch of the pulmonary artery acts just as does the arch of the aorta. The openings into these great vessels lie, as already stated, eccentrically to the heart's axis. This eccentric position of the openings of both great arteries greatly favors the twisting of the heart. The twisting is hindered by the chest wall, the resistance of the lungs, and the attachment of the pericardium to the diaphragm; it is therefore a "virtual" one, in the mechanical sense. It is a remarkable solution of a mechanical problem to see the driving machine of a liquid current hanging almost freely movable. It is easy to see that every change of form of the large arteries must alter the position and the twisting of the heart; and as doubtless the arrangement and structure of this arch in health are of such a nature that the work of the heart is done with the least expenditure of force, every change of the arch by disease must make the work of the heart more difficult. Thus arises hypertrophy, and later dilation. Upon relaxation of the aortic arch, the hypertrophied heart sinks with the point downward and inward. If the arches of both large arteries are relaxed, and if both ventricles thereby become hypertrophied, the base sinks and the heart lies transversely. The longitudinal axis of the heart in health stands twisted about the perpendicular axis of the body, with the base of the heart turned backward and the apex forward, and twisted about the antero-posterior axis of the body, with the apex pointing downward. In systole, the upper border is twisted downward and backward around the transverse axis of the body; in diastole, the heart swings with the edge more upward and forward. In disease of the arches of the arteries and in hypertrophy of the heart, there are many changes in these rotations. Hence we may draw conclusions from rotations, as seen in the X-ray pictures, as to the trouble in the arches, even before any other symptom develops. A few more remarks should here be made as regards the origin of the heart sounds and murmurs. The first sound is without doubt produced by the closure of the valve of the ventricle. There is doubtless a shock accompanying this. This sound coincides with the apex beat. Naturally imperfect closure of the valve causes a murmur. This is common with the valve of the left side, but that on the right side is seldom independently defective. Does the opening of the valves of the arteries play a part here also? A shock is not produced by this, and, at any rate, if we answer in the affirmative, we should have to assume that the first tone was made up of two tones occurring in rapid succession without interruption and blending without difference of pitch, a thing that is very improbable. It is especially noteworthy, moreover, that with an unusually slow pulse there is no double sound audible. The murmur produced by the stenosis of the aortic valve unites with the tone, while the murmur produced by an imperfect closure of the ventricular valve is strictly systolic. The murmur from the stenosis of the aortic valve does not prove with certainty that the opening of the healthy valve plays a part in the production of the first sound. It may perhaps contribute. It is different with the second sound. At the moment when the expanded artery contracts, it presses the blood back against the semilunar valves and closes its path in this direction by their closure. Then, according to the principle of the hydraulic ram, there must occur a vibration of these valves, and this will produce a sound. The opening of the ventricular valve has nothing to do with the action of the ram, and therefore does not contribute to the production of the second sound. Whether the stenosis of the auriculoventricular valve causes a murmur seems to me not certain, though probable. It is certain, however, that imperfect closure of the aortic valve produces adisistolic murmur.

IX. *The Biomechanics of Reproduction.*—We have developed the minimum law and the law of luxury in a former section. Nature takes most pains in the preservation of the species. Millions of spermatozoa are wasted where one is used. A relatively large number of ova are similarly lost. If this principle of the immense excess in nature's provision is true to-day, when in man the probability of the attainment of sexual maturity is so great, as is also that of the complete ripening of fruit, how necessary was this provision in prehistoric times, while organisms were growing to the full development they have now attained! We must therefore say that in that time in which a development of inorganic material into organized matter was possible, the vast majority were destroyed before they could contribute to reproduction and the maintenance of the species. It is indeed quite illogical to suppose that nature had only the power to create a single ancestral cell and a single ancestral pair. From the fact of the immense provision made even to-day by nature for the preservation of the species, the conclusion is drawn that a number of individuals must be assumed to contribute the first progenitors of the complete human being. If, however, there was a time, upon a certain point of the earth, in which from substance devoid of life there could develop organized material, i. e., living cells, why should not the same power have extended at the same time to different parts of our planet? In other words, there is no reasonable ground to suppose that there were not many such places, even though we need not assume that the time of their appearance was synchronous. That there should have been difference in the creative forces at different places and times is natural. This produced differences in the individuals thus developed, differences that are most manifest in the present differences of races. Not from adaptation after creation, but from original condition, arose the white and the yellow, the brown and the black races. But even within large groups the development of important differences was possible and necessary from differences of places and time. Such great differences within the white race as exist, e. g., between the cavemen and the Czecho-Slavs, and, further, the Servo-Krotes, were surely present from the beginning. There is to-day no doubt that European prehistoric man originated in Europe, and the doctrine of his immigration from Asia has been discarded. Equally baseless is the theory of migration from Europe. The fact of migration, in which many races were destroyed, can not be denied; its causes are not hard to recognize; but this can not be used to prove that there were not in many places many people that had originated there independently. This attempt to prove descent of man from one pair has led to the erroneous doctrine that quite strange races are related because they have the same etymologic roots in their speech and the same development of their language. Hence arose one of the greatest follies of history, the doctrine of the existence of the Aryan. Speech arose because man had speech organs, central and peripheral. The significance of speech as a tool in the struggle for existence must have been instinctively recognized. The essential identity of conditions, in the widest sense of the words, necessarily led to like results in men that were similarly organized. We see even to-day that the same ideas arise in different heads, often with but slight differences, and it is not strange that this should have occurred in prehistoric man. There were, without doubt, certain tools, like knife-shaped stones, instruments for hurling weapons, spears, and shields, that were invented independently by the most different peoples; and upon contact with one another, all "marks of progress" were adopted, and those that were not in condition to "progress" were destroyed or were reduced to slavery. That the same thing occurred with regard to the speech weapon is natural. The better, the broader, and the richer elements were adopted, if there were present at least the passive gifts of recognition and acquisition. The different languages arose from difference of organization, and, with further development, this led to still greater differences. Even the hand of the conqueror could not permanently suppress these differences. That which was at one time common became again varied, because hearing and speech, temperament and manner of thought were different, and new experiences led to new creations and changes. There arose dialects and different forms of speech that still retained the impress of a previous common tongue. If our civilization of to-day were buried in ruins, and the future student of prehistoric times were to find in Tokyo and Tomsk, in Paris and Constantinople, in Copenhagen and Valladolid, one and the same instrument, the telephone, and if science had after centuries of controversy discovered the significance of this instrument, there would doubtless arise a telephone race in the heads of the learned. We smile at such an idea of the future, and we retain a serious face when we speak of the Aryan race. The basis of existence of any Aryan white race is, however, no more logical than that of the telephone race. Without doubt there were originally a great number of white races, of which many were destroyed; many approached one another in their development, and in fact formed different groups. The original races became intermingled by conquest, etc., and the cultured races especially mutually enriched their spiritual experiences. The purer one of these races remained, the less it advanced, and the more difficulty it had in maintaining an equality with others. But we can not assert with regard to the "lower" races, if we follow the history of evolution, that they were incapable, under equally fortunate conditions, of reaching the greatest height. If we are compelled by the laws of nature to postulate a manifold origin of man, it is just as illogical to suppose that the whole animal world originated in one ancestral cell. Surely nature is as capable of creating a variety of forms out of protoplasm as the architect is of creating a variety of structures from the same stone, or the cook a variety of dishes from the same materials. The cause of this one-sided view of evolution lies in the many analogies in the structure of organs in creatures of higher and lower orders, and above all in the pictures of the lower organization and development of these in embryonic life. But, as far as we know, both semen and ovum are all different in the different species, and still greater is this difference in the egg, from the first moment of impregnation. If the evolutionary idea that all species are descended from one cell were correct, the mutual impregnation and reproduction of different species would be a frequent phenomenon. The embryological pictures prove only that nature works with related materials and with related methods of construction. The arrangement that at a certain stage of development looks like a reversion to a lower type is an arrangement that at that stage is unavoidable, and teratological forms are not a reversion, but an arrest at one stage of the development of the species, in the case of an individual. The embryological facts lose none of their significance if the doctrine of the development of all organic life from a single organized ancestral form is discarded. The order in which the Bible creates the most varied living forms is doubtless a more nearly correct one than that which prevails to-day. The legend was the fruit of wisdom of all the Hamitic, Semitic, and Indian cultures, and arose from the consideration that every form of life that sprung up later in the completed world must have found prepared all the conditions necessary to its existence and its reproduction. That the organic world originated in inorganic material was also recognized by the old legend. That one species originated from another was never observed by the learned men of old, and we have made no such observation. If a large part of the educated adopt such a view, then, from the standpoint of science, that demands a proof, this is an arbitrary assumption. If the view were correct that the whole organic world, especially the animal, had developed from one ancestral cell, then we should have to say, in the simple style of the Pentateuch: In the beginning nature was so simple and so unskilful that she could form only one kind of cells from inorganic matter, and she was so far from industrious that she created only a single one. Only in the course of time did she develop a desire for creation, and she then created countless forms by the use of all possible mixtures of the materials available. But this view of nature is so absurd that we must discard it. Yet we can not deny, from the standpoint of logic, that in moments of great revolutions, in which the mixture of materials on the earth's surface and the physical relations were markedly altered, great changes in the living forms could have occurred, although not outside of the usual method of reproduction. It is noteworthy that the Genesis legend calls forth the woman from a part of the body of man. From one body, containing conditions adapted to both sexes, both man and woman probably originated.

DEPARTMENTS

MATERIA MEDICA: THERAPEUTICS.

By Z. Taylor Malaby, M. D., San Francisco.

The Treatment of Serous Effusions in the Pleura by Subcutaneous Injections of Pleuritic Fluid. Method of Autoserumtherapy.—Dr. N. F. Tchigayeff ("Roussky Meditsinsky Viestnij"), reports his experience with the method of serum treatment in serofibrinous pleurisy, which was first suggested by Gilbert in 1894. It consists of the subcutaneous injections of pleuritic fluid obtained from the same patient. In all of Gilbert's cases the exudate was seen to disappear within six to ten days after a single injection of one cubic centimeter of the pleuritic exudate. In a few instances the injections had to be repeated. Gilbert explained this effect by the presence of a small amount of tuberculin in the serum injected, noting that in pure case of serofibrinous pleurisy without tuberculosis there was no effect. A number of observers since then have found that the injections are perfectly harmless. The present author treated eight cases by this method from 1897 to the current year. In none of these were Koch's bacilli found. The operation was performed under observance of strict asepsis with a Jacquet's syringe, and the first injection was always given after the microscope had shown that there was pus in the pleural fluid. The first injections were made in the intersacular region, and later injections in the axillary lines, where the exudate was located. From one to four cubic centimeters was the dose used, varying with the severity of the case. The temperature usually fell after the first injection, but sometimes only after the fourth. The exudate usually began to diminish after the first injections, sometimes after a second. The patients were better subjectively after the injection, and the quantity of urine rapidly increased after each dose. The exudates were removed in about two weeks on the average; the earlier the injections had been given, the sooner they were absorbed.—North American Medical Herald.

Dietetics.—Two well-defined conditions of proper diet are given by Hutchinson: (1) That the food yields enough potential energy to supply the daily outgoings in the form of heat and work; (2) that it contains enough proteid to replace the daily and inevitable destruction of tissues. Somewhere between 2,500 and 3,500 calorics will be required; probably 3,000 represent the requirements of the ordinary town dweller; and a part of this must be supplied in the form of proteid. Whether this is obtained mainly from carbohydrates or fat depends largely on the digestive capacities of the individual and to some extent on his purse, as fats are more expensive than carbohydrates. As to the amount of proteid required to supply the waste, there is not full accord. The 120 grams recommended by Voit is larger than is considered necessary in many cases, but we do not know the minimum below which one can not go with safety. The tendency to overeat is responsible for much disease. A food giving a maximum of volume with a minimum of nourishment would be a godsend to many overfed persons. The excess of the proteid diet is principally responsible for much kidney and uric acid diathesis. One principle we must bear in mind is the interdependence of organs. We can not cut down the diet to treat a diseased stomach or kidney at the expense of the general nutrition. Ordinarily abrupt changes in the diet are to be avoided. He says there are only three great groups of diseases in which one can reasonably anticipate that dietetic means will be potent for cure. They are: (1) Diseases of the organs of digestion; (2) diseases of metabolism, fever, obesity, malnutrition, diabetes, and gout, where there is a perversion of the usual methods of dealing with nutrition; and (3) diseases of the excretory organs, especially the kidneys. As regards dyspepsia, Hutchinson remarks that the mechanical form of food is always of more importance than its chemical composition. The meals of the dyspeptic should be small and contain no insoluble ingredients. The stomach should be humored to pass on the food. In most cases of functional disorder he thinks it well to give the stomach a little wholesome neglect. Overeating may be a serious evil. On bowel troubles we should consider the mechanical condition of the food. One should select a diet in diarrhea that has as little unabsorbed residue as possible. With constipation the opposite should be the aim. In fevers, it is a question whether we have not gone too far in the reaction from starvation. In all forms the carbohydrates should enter freely into the diet. Obesity is a disorder in which it is easy to overestimate the effects of diet. The proteids are less likely to cause harm than the carbohydrates and fats. Restriction of drinking at meals prevents overeating. Alcoholic liquors are likely to do harm. In diabetics there is a pretty general uniformity as regards diet. In renal disease, Hutchinson would follow the common opinion that in acute nephritis, especially when blood is present in the urine, an exclusive milk diet gives the best results, but in chronic nephritis affairs are more complicated. We should keep up a vigorous heart. Meats should not be excluded, but foods which contain only the extracts of meats without their albuminous elements should be rigorously avoided. Restriction of fluids in cases of dropsy is not contraindicated, and he would have no hesitation in recommending the dry diet to such patrons.—A. M. A. Journal.

Helmitol; a New Urinary Antiseptic (P. Rosenthal, Therap. d. Gegenwart, ref. Therap. Rev. d. Allg. Wien med. Zeitg., March 31, 1903, p. 12).—The author treated twenty patients with this powder in his polyclinic. Eighteen had chronic posterior gonorrheal urethritis, one cystitis, and one chronic prostatitis. In only one case of chronic gonorrhea the remedy at first failed, but subsequently produced the desired effect. In the others, a favorable influence was noted within a few days. The author then describes several especially characteristic clinical histories, and finally offers the following conclusions: Although the number of cases reported is by no means exhaustive enough to enable me to express final judgment upon the therapeutic value of helmitol, they were all so favorable that I feel justified in urging investigation of the remedy. The preparation has recently also been prepared in the form of readily-soluble tablets. One glass tube contains 20 tablets, with 0.5 gr. (7.5 grains) each helmitol.—Ex.

Severe Case of Scarlet Fever Treated with Normal Blood Serum.—C. S. Engel ("Therapeutische Monatshefte") figures that nature's method of overcoming infectious diseases is as follows: The etiological factor causes the formation of immune bodies on the part of the body cells; with the help of these, the already-present alexins destroy the invading body. If the disease is withstood, new complements are built up in place of those already used, while the immune bodies are still retained in the serum for some time. If the disease terminates fatally, the cause is either an insufficient quantity of amboceptors, the using up of the complement, or the want of both. These facts led the author to use fresh, normal human blood serum in a severe case of scarlet fever, with surprising results. Although the author does not wish to conclude that normal serum is indicated in similar cases, he believes it demonstrates that the active protecting bodies are but too often wanting in severe infections. The quantity of serum used in this case was eight cubic centimeters. The serum must not be allowed to stand too long, as the alexins soon break up, and the injections should be given early in the disease, before the specific poison has united with the body cell.

On the Results Which Have Been Obtained by Anti-Typhoid Inoculation.—Wright ("Lancet") contributes an article on this subject. A table presenting the statistics of anti-typhoid inoculation is appended. He reaches the following conclusions: There is a risk that (a) in the case in which the patient's resistance is naturally low, or has been reduced, as is often the case, by a previous attack of typhoid fever; (b) in the case in which the patient is inoculated with a full dose of vaccine in actually infected surroundings; and (c) in the case in which the patient is inoculated with an excessive dose or is reinoculated too soon, the system may be left more open to infection at a period when it stands in need of protection. The facts set out in column 6 of table 2, and possibly some of those which have arrested the attention of Bromble, seem to him to indicate the reality of this risk. It must be the task of the future to try to minimize the risk, on the one hand, by working out an adequate method of standardization of the vaccine, and, on the other, by combining with the study of the changes produced in the blood by anti-typhoid inoculation, the study of the blood in the typhoid convalescent, and the study of the gradual success or failure of the process of immunization in the actual typhoid attack. It is not necessary to insist on the urgency of this task.

Coryza, Acute, Treatment of.—Acute coryza may sometimes be aborted in an early stage by the frequent inspiration of the vapor of "Brand's remedy," which consists of—

℞: Acid. carbol. pur.,
Ammon. liq., of each, 5 parts.
Alcohol (90°), 10 parts.
Aq. distil., 15 parts.

Or by a single intranasal spraying with—

℞: Ichthyol, 5 parts.
Alcohol.
Ether, of each, 50 parts by weight.

The most rational abortive treatment is, however, to paint the Schneiderian membrane with a vasoconstrictor, such as cocain, or, still better, because its action is more prolonged and equally intense, with an aqueous extract of suprarenal capsule. Vacher, of Orleans, has by this treatment frequently suppressed a cold within a few hours. The hyperemia of the mucous membrane soon disappears, and with it the symptoms of coryza. The crystallin hydrochloride of adrenalin, isolated by Takamine, is equally efficacious. The commercial solution is of a strength of 1 in 1,000, but solutions of 1 in 5,000 or 1 in 6,000 are sufficiently powerful. Perhaps the surest way to abort a cold is to paint the mucous membrane two or three times with suprarenal extract or a solution of adrenalin, and to inhale "Brand's remedy" frequently in the intervals. When a cold has once developed, much may be done to relieve the headache and the sensation of nasal obstruction. The symptoms improve at once if the mucous membrane is sprayed every two or three hours with a tepid, 1 per cent watery solution of cocain, or, still better, with hydrochloride of cocain and menthol, of each 5 parts, dissolved in 100 parts of liquid paraffin. Even in cases of chronic coryza, painting the mucosa with adrenalin or suprarenal extract greatly assists the restoration of nasal permeability. Spiers believes that the abundant nasal discharge is largely kept up by reflex irritation. He therefore treats coryza by post-nasal insufflations of orthoform, and claims to have had good results. Early treatment of coryza is both curative and prophylactic, and may frequently prevent extension of the process to the sinuses or middle ears.—Pugnat, in British Medical Journal, Revue Medicale de la Suisse Romande, May 20, 1902.

Local Application for Corns.—

Salicylic acid	1 gram	(15 grains)
Extract of cannabis indica	0.5 gram	(7½ grains)
Alcohol, 90 per cent	1 cc.	(16 minims)
Ether, 62 per cent	2.3 cc.	(37 minims)
Flexible collodion	5 cc.	(80 minims)

To be applied every evening for eight days. On the eighth day a prolonged foot-bath should be taken, then with a scraper the mass of collodion, with the greater part, if not all, of the corn, may be removed. This treatment may be repeated, if necessary. (This is but a slight modification of the well-known process of Traill Green, which has become the basis of so many proprietary corn cures.)—American Medicine.

Rheumatism.—Salicin has been of service in rheumatism, given in combination as follows:—

℞: Salicin	dr. 1
Potassium bicarb	dr. 1½
Sodium bicarb	dr. 1½

M. et. ft. chart. No. x.

Sig.—One powder every three hours, dissolved in hot water or hot milk.

Aspirin, a more recent preparation, is a very valuable substitute for the salicylates, salol, or salophen, and, its action being similar, it may be classed in this group. It may be prescribed as follows:—

℞: Aspirin	dr. 1½
Extract nucis vomica	gr. v

M. et. ft. capsule No. xij.

Sig.—One capsule every four hours. —A. M. A. Journal.

Specific for Pertussis.—Dr. Asa Jones claims Jamaica dogwood—dose, three drops in a teaspoonful of water every three or four hours—a specific for whooping-cough, as much as quinin for chills.—Medical Record.

The Bill of Fare for Consumptives.—Robin advises a large glass of milk on waking, with a dash of vichy water. Breakfast at 8, with a piece of fat steak or a cutlet, two soft eggs, a little toast, oatmeal with abundance of cream, but little sugar, and two glasses of milk or a cup of coffee. At 9, cod-liver oil and a little milk, or a glass of milk with the yolk of an egg. At 10, a large cup of beef tea, made from raw meat, after which the patient lies down until noon. Dinner at 12:30, with fish, rice, chicken, cauliflower, and a slice of well-buttered bread, one or two glasses of milk, and baked apples and cream. At 2, cod-liver oil, or milk with the yolk of an egg. At 4, sandwich of scraped beef, and rest or sleep till 6, when the supper can consist of beef, fish, mutton, or raw beef, with spinach cooked in cream, and blanc mange or vanilla ice-cream. At 8, cod-liver oil or milk and yolk, and at 9 or 10, a glass of iced or very hot milk or a cup of good beef tea. At night, if wakeful, a glass of milk at 1 or 2. This regime is tolerated by nearly all patients, and has given the best results in his extensive experience. Milk is the constant beverage.—Bull. Gen. de Ther.

Treating of Haematemesis.—The Philadelphia "Medical Journal" remarks that to give the stomach rest is practically the essential feature in all forms of treatment, either by the employment exclusively of rectal feeding or by the use of an exclusive milk diet, possibly peptonized, and given in small quantities, etc. Here again, as so often, comes up the grievous fact that doctors do not, will not, know that supplied bovine blood, as in bovinine, will give their patients perfect sustenance without food, while their stomachs (the patients' stomachs and the doctor's consciences) enjoy absolute rest; and not only this, but the most potent healing, for whatever lesions, may be the cause of the hemorrhage. The same supply, and nothing else, is the sovereign solution of the deadlock between alimentary danger and the necessity of aliment, in typhoid fever and like conditions.

The Treatment of Croup.—The management of croup is one of the most trying problems that beset the physician, and one of the most ungrateful. Mr. Leopold Bayer recommends a method which he has tested for four years with uniform success, having treated and brilliantly cured twenty cases of true croup. He employs calomel and apomorphin, according to the following formula:—

℞: Calomel	3 grn.
Sugar	½ dram.

Make eight powders. One powder every two hours.

℞: Apomorphin hydrochlorate	1-6 grn.
Distilled water	3½ ozs.
Dilute hydrochloric acid	2 drops.
Syrup	2 dr.

Teaspoonful to dessertspoonful every two hours.

The two remedies are given alternately, so that the patient gets calomel one hour and apomorphin the next. For children under two years, the dose of calomel is reduced to about one-sixth grain. Both prescriptions may be repeated, and in the author's cases more than two repetitions were never required. The calomel should be partially discontinued as soon as amelioration is noted, lest untoward results appear. The apomorphin may be continued longer. The sooner this treatment is begun, the better. But even commenced on the second and third day of the disease, it offers good chances of recovery. After twelve hours of medication, an improvement is generally noticeable in the easier breathing. The stenotic phenomena gradually gave way to normal respiration.—Merck's Archives.

Sulphur Cream for Dandruff.—Dr. George T. Jackson uses the following sulphur ointment extensively in the treatment of dandruff:—

℞: White wax	3½ drm.
Ol. petrolati	2½ oz.
Rose water	1 oz.
Sodium biborate	15 grn.
Precipitated sulphur	3½ drm.

This is an elegant, smooth, white preparation, without sulphur odor. It keeps perfectly, does not separate, and is as perfect as ointment can be. Dr. Jackson has tried on his scalp all sorts of lotions in the treatment of seborrheal dermatitis, and invariably comes back to the sulphur cream, with pleasure and profit. Used once or twice a week, it keeps the scalp comfortable, does not make the hair too greasy when properly applied, and checks the dandruff.—Jour. Cutaneous and Genito-Urinary Diseases.

The Treatment of Acute Milk Poisoning—Summer Diarrhea.—T. S. Westcott says that the treatment naturally falls into three divisions: (1) Prophylactic, (2) dietetic, (3) medicinal.

Prophylaxis.—The cardinal principle is the use of pure cow's milk. The cows should be tuberculin tested; the average percentage of fat, proteids, and sugar should be fairly constant; there should be complete freedom from preservatives and coloring matters; there should be a minimum number of bacteria to the c. c., with complete absence of pathogenic varieties. In other words, certified milk should be used whenever possible. Pasteurization and sterilization of milk in hot weather may be resorted to, but these processes can not make wholesome a milk already unfit. The practice of heating the night bottle, and keeping it warm until the baby wakes for the feeding, is strongly condemned. Experiments by the author showed that the bacteria in the milk multiplied enormously as a result of such a practice.

During the hot weather no milk should be used that has been kept overnight from the supply of the day before.

In many cases it is of advantage to weaken the strength of the milk mixtures during the very hot weather. At the slightest sign of disturbance of stomach or bowels, milk feeding should be stopped, and a dose of castor oil given, followed by broken doses of calomel.

Dietetic Treatment.—No cow's milk must be used. Albumen or barley water or acacia or rice water may be given. If otherwise indicated, small quantities of whisky or brandy may be added. Raw beef juice may be used. Milk foods must be withheld until all signs of trouble are over, though late on in the disease the author allows the use of condensed milk. Return to milk feeding should be gradual.

Medicinal Treatment.—After the initial purge with oil or calomel, or both, the author uses bismuth in various combinations. Opium he rarely finds necessary. Cardiac stimulants are used as indicated, though strychnia is avoided, because of its action in stimulating peristalsis. Rectal irrigation with normal salt solution is recommended as routine treatment, and hypodermoclysis with normal solution is used in cases of threatened collapse. —Philadelphia Medical Journal.

EYE, EAR, NOSE, AND THROAT.

By Wm. Ellery Briggs, Sacramento, and
A. B. McKee, San Francisco.

The Use of Hard Paraffin in Eye Surgery.—The use of paraffin has been so much recommended in surgery within recent times that a short review of the subject seems in order. The first thought that suggests itself is the use of paraffin after enucleation of the eye. Klingelhoffer speaks of its use, but does not say that he has had practical experience in its use. Silex used it in a number of cases, and half of them disappeared too soon for him to be able to state what the final result was. The paraffin was injected immediately after the enucleation, and seemed to produce no reaction, but in those cases which he was able to follow, the paraffin was extruded after a few days or a week. Silex tried this method in a case in which the eye had been enucleated four weeks previously, but on account of the firmness of the tissue was able to inject only a small quantity. Pagenstecher, on the contrary, gives some favorable results. His histories, however, are not sufficiently complete to admit of a final opinion as to the success of the method. Domec uses paraffin to make a model of the enucleated eye, the better to be able to fit an artificial substitute. He fills the socket, moulds the paraffin with the fingers, presses the lids over it, and then removes the mass for a model. In a case of epicanthus, combined with depression of the bridge of the nose, Brockaert had a good result from the injection of 1 c. cm. of paraffin under the skin of the nose. Klingelhoffer relates a similar case, in which caries of the lower wall of the orbit was combined with a sunken scar of the nose. The result from injection of paraffin was all that could be desired. Silex tried injections of paraffin in removal of the tear sac, but did not find the operation rendered easier thereby. Springer recommends a mould of paraffin as a substitute for tin foil for covering plastic operations. The preparation of Eckstein, with a melting-point of 50 to 60 degrees, is preferable to that of Stein, which has a much lower melting-point, and which carries with it a greater danger of thrombosis. The danger of the use of the technique of Stein is shown by a case in which Leiser endeavored to cure a saddle nose by the injection of paraffin. After the third injection, a condition of collapse followed, and the patient upon awakening found that he was blind in the left eye. After the inflammatory process was gone, it was demonstrated that optic atrophy and thrombosis of the ophthalmic vein were present.—Wochen. fuer Hygiene und Therapie des Auges.

Haab reports two cases of tuberculosis of the iris in which, after the third insertion of a piece of iodoform into the anterior chamber, the disease entirely disappeared.—Ibid.

Gelatin as a Hemostatic for Children.—Zuppinger relates a case of a girl dying with hemorrhagic purpura in spite of tamponing the naso-pharynx. This led him to try subcutaneous injections of 2 to 5 per cent solutions of gelatin in all hemorrhagic affections, and he found them invariably successful. Holtschmied reports saving the lives of five infants affected with melena neonatorum by injections of 15 c. c. of a 2 per cent solution of gelatin. In three the effect was immediate; others required one or two more injections. A few drops of a concentrated solution of gelatin applied to bleeding points in hemorrhage of the throat immediately arrested the bleeding.—Journal of the American Medical Association, vol. 15, No. 13.

Aspirin.—Dr. Hans Kirchner gives a resume of the use of aspirin in oph-

THE HAHNEMANN HOSPITAL COLL

thalmology, in which he says that he has found it of great service in acute iritis, taking the place of the salicylates, and even giving results when the latter have failed. He advises 1 to 2 grams in the morning and 1 gram in the evening. He finds it valuable even when no signs of rheumatism are present and in cases of irido-cyclitis with severe pain. It has an astonishing effect in neuralgias, especially of the supraorbital variety. Aspirin seems to possess in many cases an analgesic effect comparable to morphin, without any of the disadvantages of the latter.—Ophthal. Klinik, Nov. 18, 1901.

Tattooing the Cornea.—Coffler gives the history of this procedure, in which he goes back to the times of ancient Greece and Rome. In a work on surgery published in 1793, the tattooing of a corneal opacity is described. A variety of methods and materials has been made use of. The first extensive description was given by de Wecker, in 1870. The coloring substance must be insoluble, but not irritating. India ink fulfils these indications better than any other substance. The finer this ink, the less likely it is to contain bacteria. He has been able by the use of blue and black in various combinations to make artistic effects. As a local anesthetic, holocain is most suitable, as it does not affect the epithelium like cocain. The ink is best mixed with a 1-1,200 sublimate solution. Tattooing can also be used along the lid margins when the cilia are missing, or on the eyebrows when scars cause small defects.—Wochen. fuer H. und T. des Auges.

Thiosinamine is the subject of an article by Sucker, of Chicago. It is supposed to have a solvent effect on scar tissue. Lupus, keloid, urethral strictures, and joint affections after rheumatism are supposed to be influenced by it. In ophthalmology it is recommended for cicatrices of the lids, exudative choroditis, symblepharon, capsular opacities, ectropium, and corneal opacities. Its action is said to be entirely local. It should not be prescribed when the patient has had an operation for hernia. Thiosinamine is a colorless, soluble substance, with a garlic-like odor. It may be given in 3-grain doses in capsules twice a day. After five or six weeks' use, it should be given up for eight to ten days.—Journal American Medical Association, August, 1902.

Cause and Specific Treatment of Hay Fever.—Dunbar, the chief of the Institute of Hygiene in Hamburg, has written a most notable article on hay fever. He considers that the cause of hay fever is to be found in albuminoid bodies found in the starch particles of certain plants, and identical in all. He was able to produce an antitoxin, which was slow in its development in the bodies of animals, but eventually acquired the power to resist and overcome the toxic agents. In the tests of the new serum, an aqueous suspension of ground pollen grains, which produced the usual symptoms in the eyes of unprotected individuals, was completely neutralized, after the appearance of redness of the caruncle of the eye, by instillations of the antitoxin. The results of its use in the nose were even more striking. Work along this line has already been done by Holbrook Curtis, but the position of Dunbar stamps these findings with the mark of authority.—Journal American Medical Association, vol. 40, No. 14.

The Operative Treatment of High Degrees of Myopia.—Berger sounds a note of warning regarding this operation, revived by Fukala, but tried long before by Graefe. The relative frequency of detachment of the retina with or without operation in high degrees of myopia has not been satisfactorily determined; however, Berger says that, as these eyes must be considered diseased even when no changes in the background are present, a great responsibility is involved in the operation.—Wochen. fuer H. und T. des Auges, vol. 6, No. 24.

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TO INVESTIGATE TUBERCULOSIS IN CALIFORNIA.

Among the many important subjects brought up for consideration at the recent meeting of the Medical Society of the State of California, none secured more attention and none demands more thought on the part of the profession than does tuberculosis.

For some years this question has severely engaged the minds of the investigators of both continents. Its study is now universal and imperative. Much knowledge and benefit have resulted to the human race. Its rapid spread has become a matter of most serious concern. In an editorial note on page 236, vol. XIII (1901), attention was called to the great increase in the death rate of the native born of San Francisco for the ten years from 1890 to 1900. The statistics were alarming, and what was true of our city was and is true of the state. Hence this act on the part of the Society is most opportune, both as a question of scientific advance and as one of state protection. It should be met with a determination to be foremost in the fight and abreast of the times.

The discussion elicited by the papers on this occasion was conservative, though the gravity of the situation was appreciated to the extent that a committee was appointed, consisting of Drs. Pottenger, Cole, King, Evans, and von Adelung, to investigate the subject and make such recommendations to the Society at its next meeting as they may deem appropriate. The subject in general will demand much thought from the committee; the most significant point, however,—its spread,—should concern not only the members of the Society, the profession at large, and the public-spirited citizen, but above all the sufferer, without whose aid and cooperation all efforts to prevent further increase will be of little avail. He it is who must be taught the danger of infection, not only among those with whom he comes into daily contact, but especially among those who are innocently exposed in hotels, houses, daily life, etc. His honest and unselfish realization of the difficulties of the problem of exclusion, quarantine, detention, the management of sputa, etc., will aid probably more than any other measure to check its progress. And herein the physician's work ofttimes is complacently fulfilled and his task accomplished if he can have his patient go into the country or a neighboring state, without thought of infecting these countries, and without proper instruction as to the care of his ejecta and the danger to others that he is carrying around. Fortunately the public are beginning to realize their peril, and are justly protesting against avoidable infection. Many of the prophylactic measures in force to-day are due to the recognition of the cause and the vigilance of the people at large. Through the efforts of a few, and not the mass, of the profession, they have become duly alarmed. The best results will be attained when the tuberculotic will be convinced that in many instances the disease is curable; that voluntary prophylaxis is easy, efficient, and necessary to prevent reinfection of himself and infection of his surroundings. Such an era in education is coming; it is part of every physician's duty to aid so good a cause; and he is derelict in duty when he does not fully, thoroughly, and repeatedly insist that the most advanced treatment of the disease, while recognizing the effectiveness of proper diet, certain medicines, etc., demands outdoor life, tent life, altitude frequently, sunshine, and the destruction of all ejecta, to effect a cure.

To enter into a lengthy dissertation of the prophylaxis of the disease is unnecessary; it is sufficient to add that there is apparent considerable laxness on the part of physicians in not insisting on the necessity of hygienic and preventive measures, of self-sanitation, of the inefficiency of mere drugging and of an indiscriminate change of climate and altitude. Too often a patient is sent away without full appreciation of his needs or the benefits or results that may accrue. To subject these patients to the extreme quarantine measures advocated by many will lead to clandestine exposure, both on the part of the patient and physician, since there are more than a few practitioners who vigorously deny that direct infection ever takes place. The time has not arrived when stringent legal measures can be effectively carried out. Greater care in diagnosis and greater effort in recognizing incipient cases are necessary.

The Society has imposed upon this committee the difficult task of collating all cases and of framing some conclusions whereby it can be guided in the formation of suggestions to the people, physicians, and state authorities that may aid in the formulation of measures to check the rapid advance of this justly-dreaded disease. Without the ready assistance of the medical men of the state, within and without the jurisdiction of the Society, little can be accomplished. It is therefore incumbent upon the medical fraternity to be generous in the expression of their views as to the most efficient means of staying the progress of this disease.

RECIPROCITY BETWEEN EXAMINING BOARDS.

An editorial in the *Medical Sentinel* for March, states that the Oregon Legislature has passed a bill empowering the State Board of Medical Examiners to grant licenses without examination to physicians holding licenses from state boards which extend a similar recognition to those who have complied with the Oregon law, and expresses the hope that contiguous states will soon favor a similar arrangement. At the annual meeting of the State Society of California, the president, Dr. F. B. Carpenter, referred to the matter, but urged caution and discretion in the ratification of such an arrangement, especially at present, with other states than those of the Pacific Coast. Our present law empowers the Board of Examiners to institute reciprocal relations with any state whose requirements are equal to our own; hence California stands ready to join with her neighbors, when their officers deem it proper to become so gracious; but it is hardly the proper spirit, or is it magnanimous, for California to confine her favors to a certain territory. If the hand of reciprocity is to be extended, let us admit our equals, East and West, and not allow that selfishness and exclusiveness that pervades too conspicuously many of California's interests to tarnish further the name of Medicine, as recent historical events, so fresh in memory and so charged to the body of the profession by local and Eastern medical journals and certain medical practitioners, have done. The wisdom of the president's address is apparent from a review of the old method of admission to practice, when California became the receptacle for the refuse of many states; but, while care and circumspection are very necessary and commendable, justice and magnanimity should guide our Board of Examiners, no matter how many may desire to enter our threshold. In such a question there should be no East or West; the best and worthiest should be sought from any part of our dominion. The day of reciprocity between the majority of the states is near at hand. It will intensify the brotherhood of the profession; it will be of undoubted advantage to all; and California's men and California's schools should be ready and willing to compete with and, we hope, rival the best of the world.

SOCIETY PROCEEDINGS.

SACRAMENTO SOCIETY FOR MEDICAL IMPROVEMENT.

Regular Meeting, February 24, 1903.

The president, H. H. Look, M. D., in the chair.

CANCER OF THE UTERUS.

Dr. W. A. Briggs: If in a woman who has borne children, thirty years of age and upwards, we find the os patulous, studded with nodules, the mucous membrane offering resistance as if firmly adherent to the tissues beneath, and if with these symptoms we have hemorrhage the first symptom, and this followed by leucorrhea streaked with blood, I think we should advise our patient of the necessity of a microscopical examination and recommend the services of a pathologist. Personally I believe the leucorrheal discharge, streaked with blood even, often precedes the hemorrhage, although the rule is that it follows the bleeding. Of course the characteristic symptoms as set forth in the paper are hemorrhage, discharge, and pain. Pain, we know very well, may be absent early in the disease, and even throughout its entire course. Therefore absence of pain is not important. In 98 per cent of the cases of cancer of the uterus, in those who have borne children, the disease is located in the cervix in preference to the body of the organ, which facilitates the diagnosis. If it has shown a marked effect on the woman's health, I do not think we should wait for the appearance or stage of cachexia, as the early diagnosis is the important thing. We know very well that in these cases the prognosis is favorable under an early and thorough extirpation, and under no other treatment have any permanent results been obtained at all. Should these symptoms persist, even though the report of the specialist be negative, the patient should be advised, in my judgment, that the real danger lies in delaying the removal of the growth. It is here that we should strive to have our patient realize that the danger is from the disease, not from the operation to remove the disease focus, and which, performed early, goes well into healthy tissue, which heals readily. I have had the opportunity to witness two cases that demonstrate the importance of this to my entire satisfaction. One was a woman aet. about forty-five years; her physician had told her plainly that, while he could not say positively that the growth was malignant, radical treatment was all that he could offer, and referred her to a surgeon. She subsequently went to San Francisco, and received similar advice, which was also given on her coming to Sacramento. Both she and her husband had such dread of the knife that she decided to go under the so-called caustic treatment of one of our notorious quacks. At first she was temporarily relieved; but the treatment growing more painful, she again sought advice, dreaded to accept the offer of surgical procedure, notwithstanding she was given to understand that at that late date she could not hope for much more than temporary relief. This patient often told me subsequent to her operation that any one of her previous "treatments" caused her greater suffering than did the operation. A short time thereafter I was called to a case as nearly identical as could well be, except that the patient was about five years younger. She had just had her second severe hemorrhage. Having the above case fresh in mind, I related it to her briefly, and advised consultation, which was accepted. Dr. G. A. White saw the case with me, and concurring in my views, advised surgical procedure. The patient went to the hospital that evening, and was operated the next morning. She insisted that she did not have a pain during her time in bed after operation. This was about eighteen months ago, and the last time I saw her, she was doing her housework, requiring considerable stair-climbing, by the way, and was healthier than for a number of years. I think these two cases illustrate the timeliness of a paper on this subject. It is hardly necessary to say that the first case terminated fatally, though she lived between six and seven months, during the first half of which period she was comfortable so far as pain was concerned. The bladder and rectum were involved at the time of the operation.

Dr. G. A. White: I did not hear the paper read, but judging from the remarks of the members who have discussed the paper, I take it that the author confined his remarks chiefly to the early diagnosis of the disease. It is in that stage of cancer that promises the best hope of cure. When cervical cancer is taken in hand surgically, it can be cured; but if delayed until the body of the uterus is invaded, surgery offers very little. I believe that a competent pathologist should pass upon the character of the disease before it is taken up surgically. The trouble is that most women delay consulting a physician until the time has passed when they can profit by a pathological examination. They come with the diagnosis already made, and a pathologist is not needed. For that reason, in a community of this size, we do not develop a pathologist who is willing to give his time to this work. The therapeutics of cancer are disappointing. Something is being done with the X-ray, but I am not in a position to give an opinion as to its value in cancer of the uterus. I fear it will not do all expected of it, and we shall have to continue to attack cancer of the cervix and of the uterus with the knife.

Dr. E. W. Twitchell: I think the statistics the author quoted in his paper show that the subject is a timely one. The first word of the title is the important part of it. Early diagnosis certainly can only be made by a pathologist. I do not mean by a man who does a little work in this line, but by a man who is doing this work from day to day. I have done more in this line than the ordinary man, and know my inability to make a diagnosis in a questionable case. These slides as presented here to-night illustrate the difficulty that besets a physician with a limited knowledge in this particular field. When you send a specimen to a pathologist, send him a good piece with which to make a diagnosis; get well into the healthy tissue; remove a piece under cocain. In case of curettage of the inside of the uterus, save all the pieces; do not throw away as unimportant little pieces that do not look as if they show anything; they may show the most. When sending our specimens, proper care should be taken in putting them up. Put your specimen into dilute alcohol, changing it three or four times, eventually using 95 per cent alcohol. It is then in fit condition to send to a pathologist.

Dr. A. M. Henderson: Early diagnosis is important to success in the treatment of all diseased conditions, and particularly so in reference to the treatment of cancer of the uterus. It would seem from the statistics given by the author of the paper that the great majority of cancers of the uterus develop from the cervix, and of these, the large part develop in women who have had lacerations of the cervix. With ideal conditions and surroundings, with hospital facilities, it might be possible to adopt a general rule of repairing all lacerations of the cervix. In attending confinement cases, as most of us do, in private houses, this is out of the question; but certainly those cases in which there is extensive laceration should be repaired immediately. Dr. White says most of these cases delay consulting a physician until it is too late. I think we physicians fail to impress upon our confinement cases the importance of keeping themselves under the observation of their physician. With such a practice, we would observe diseased conditions early, and by submitting the suspicious cases to the microscopist, it would be possible to make an early diagnosis and effect a cure.

DIPHTHERIA, TRACHEOTOMY, RECOVERY.

Dr. J. H. Parkinson: I would like to report a case for the information which it may convey to the other members, as illustrative of the difficulties which sometimes beset us in making diagnoses of diphtheria and allied diseases. X. Y., aet. four years and five months, was first seen by me January 17. The patient was then croupy and coughing. Since its birth, the child has had attacks of croup. On December 23 examination of the throat showed a slight membranous deposit on the tonsils. There was no odor; temperature 100° at 1:30 p. m. At 11 p. m. peroxide of hydrogen was applied to the throat, the temperature then being 99.8°. The following morning the throat was clean and temperature normal, but the child continued to be croupy when he coughed. His articulation and annunciation, however, were quite clear. He went along in that condition for three days, the temperature normal and the child apparently doing well and kept in bed. During this time he was practically isolated. Upon my next visit, his temperature was 100°, and the next day it was 100.2°, the child having slept quietly all night. When asked to cough, it was always croupy. On Friday the child had some difficulty in breathing during the night, but the following morning he was breathing easily and normally, sat up in bed, and was not particularly annoyed about anything. That evening and Saturday night the child was quite bad. I was sent for, and at that time he was breathing severely, temperature 100°, and no apparent change in any way. There was nothing in the nose or throat. I then asked for consultation, to which the parents consented. Dr. W. A.

Briggs saw the case with me about 8 o'clock, and we decided to perform tracheotomy, as the only visible means of affording relief. I gave the child antitoxin, and operated at 9:30. The operation was followed by marked relief. There was no evidence of any membrane until the following day, Monday. That evening some pieces of material that could hardly be called membrane were expelled. I brought a piece to Dr. A. M. Henderson for culture purposes, but he told me he could find nothing in it that would indicate the presence of diphtheria. Next day the child expelled two or three pieces which looked something like the material one gets in croupus enteritis. The question is, What was the matter with that child? In the absence of culture, the supposition would be that the child had diphtheria. We oftentimes hear it said that it is an easy matter to diagnose diphtheria, but the more one sees of those cases, the more difficult it is, it seems to me, to be positive of the existence of the diseases in many instances.

Dr. A. M. Henderson: In the case mentioned by Dr. Parkinson I made an examination of cover-glass smears from the membrane referred to me by Dr. Parkinson, with negative results. On the following day I repeated the examination, and found no bacilli of any character. I had no culture media, and did not consider the result of the examination of particular significance. The membrane, however, was not croupous in character. Some two years since I had a case similar to the one reported by Dr. Parkinson. Dr. W. A. Briggs saw the case with me. The condition was so strongly suggestive of laryngeal diphtheria that we gave antitoxin. The subsequent progress of the case was such as to satisfy me that the case was one of spasmodic croup, and the antitoxin did no harm. About the time Dr. Parkinson was waiting on the case he has reported, I was called to attend a similar case in a child about ten years of age. I saw the case for the first time about 10 a. m. The child was struggling for breath. There was marked recession of the suprasternal fossa and the supra-clavicular spaces. On account of the severity of the symptoms and the marked prostration, I was inclined to make a diagnosis of diphtheria. I prescribed an opiate in small doses, and the condition was quickly relieved. The croup recurred during the night, but subsided during the day. A diagnosis is not always easily made in these cases. Whatever was the condition in the case reported by Dr. Parkinson, heroic treatment was demanded, and the doctor is to be congratulated on the recovery of his patient.

Dr. J. A. McKee: A few weeks ago I had a case, that of a married woman about thirty years old, who had tonsillitis on both sides. In looking into the throat, I observed a thick, opaque membrane, something I had never noticed before. I asked for an ordinary table knife, and, depressing the tongue, I took the knife and peeled off the membrane from the tonsils. It had extended onto the soft palate. Next day I found the tonsils and soft palate covered with a very thick, diphtheritic membrane. I used pyrozone, iron, and antitoxin. After she had been sick about a week, to the disappointment of her family, she aborted. I do not know whether the abortion was due to diphtheria or to the antitoxin.

Dr. H. L. Nichols: I believe many of the cases that are diagnosed and reported as diphtheria are simply tonsillitis. I do not think it difficult to diagnose between diphtheria and tonsillitis. The true membrane of diphtheria, it seems to me, can not be mistaken for any of the kindred diseases; it is thick and leathery. The slight membrane seen in tonsillitis can be successfully treated with simple applications. When you have a firm gray patch adherent and extending over the tonsils and uvula, this is the true diphtheria. A little pyrozone and chlorate of potash will remove the membrane in tonsillitis. In true diphtheria I find that with sub-sulphate of iron and chlorate of potash locally, with iron and quinin internally, you can get successful results.

Dr. W. A. Briggs: I saw the case mentioned by Dr. Parkinson, and believe it to have been diphtheria, with very little question. We have diphtheria undoubtedly in various grades of severity, and we have germs that structurally are alike, or at least indistinguishable, which produce disease of very different grades of severity, as in typhoid fever and other infectious diseases. These germs undoubtedly vary a great deal more than the human race varies, and, as I said, the diagnosis in some of these cases is beset with great difficulties. I have one or two cases which I would like to report briefly. Both are cases of infectious nephritis. We all know the great influence of urotropin in infectious disease of the bladder. The treatment of this disease since urotropin has been used has become more efficient. I do not remember, however, of seeing it recommended in nephritis. I had an opportunity about two months ago of using it in a case of scarlatinal nephritis in a child about ten years old. The twelfth day after the attack she was taken with scanty urine, only an ounce being voided in twelve hours; and on boiling it, it became nearly solid in the test tube. I ordered three grains of urotropin given every three hours during the day, or eighteen grains in the twenty-four hours. On the second day the urine came up to about twenty ounces, and at the end of a week condition of the child was normal. I made several examinations afterwards, and recovery has remained perfect. Of course, I used other means,—hot water to the back, milk diet, and water freely,—but the only medicine prescribed was urotropin. About the latter part of January a child came into my office. She was about eight years of age, and with a history of scarlatina and nephritis, beginning on the 25th of October, 1902. The child lived in Vancouver, British Columbia. She was put on a milk diet and medicine, probably iron. She came to me very anemic and emaciated, and with evidence of serious trouble. Albumen in decided quantity was present from the 25th of October until the 25th of January, when I put this child on a treatment similar to that in the preceding case, and at the end of ten days the albumen disappeared from the urine, and has been absent until the present time. The child has increased in weight about seven pounds, has become ruddy, and has been placed on a mixed diet, and to all appearance is perfectly well. These two cases, it seems to me, offer some evidence of the value of urotropin in such cases, and I would suggest its use, not only in scarlatinal but in diphtheritic and other forms of nephritis depending on infection of the kidney.

THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Meeting, April, 1903.

The President, Louis A. Kengla in the chair.

H. B. Reynolds read a paper entitled,

ERYTHROMELALGIA.

[Published at page 162.]

Dr. D'Arcy Power: The importance of these cases, perhaps, lies not so much in the well-defined examples, as in the probability that many analagous conditions occur in forms that are not strictly erythromelalgia. In regard to the number of cases reported, I might draw Dr. Reynold's attention to ten others which I do not think are included; namely, the cases reported by Collier in '98 in the "Lancet" (Aug. 13, 1898). References are made to these cases by Allchin in the last volume of his system of medicine, now in the course of publication. Collier, in the ten cases that he dealt with, made an observation which is of some importance; namely, that as far as he could determine, the vaso motor preceded the sensory changes. Collier and Allchin agree with him, stating that the dilatation is primary, and is followed by sensory disturbance, which is not much more than the natural result of over stimulation and consequent swelling of the parts. From Dr. Reynold's statements I infer that he thinks the sensory changes precede the vaso motor. That such cases occur without being developed into the typical disease is probable. I had a case which I had the fortune to see at the beginning. A lady a member of our profession, was suddenly seized with intense pain over the whole of the right foot. The pain was so excruciating that she could not stand, and being in the building, I was called. In that case the swelling and some redness followed the onset of the pain. There was no explanation of the attack. There had been no injury to the foot, and the previous health was perfectly good. The only condition which could in any way account for it was overwork and standing. At the time, I thought it was neurotic in origin, and as soon as it passed and the patient had rested her foot, she went home, and the pain more or less subsided. Some pain and swelling persisted, however, for a while. Within the next two days there occurred a severe attack of pain over the whole of the right side of the head, which affected the facial region in general, and the cervical plexus, accompanied by extreme tenderness. It was possible to trace the nerves down over the whole region, marked out as tender lines. While in no sense typical, there are points about this case that caused me at the time to believe it to be allied to erythomelalgia. When we consider the variability of all vaso-motor disturbances, not only in type but in time; how a migraine will at one stage be characterized by vasor constriction, to be followed a little later by dilitation; how at one and the same time the condition of vasomotor asphyxia known as "dead fingers," may oppositely affect fingers on the same hand; we should not be surprised in meeting with symptom-complexes that can not be definitely classified. Without doubt many of these complexes have a variable pathogeny. In reference to the suggestion of Dr. Reynolds that the accompanying arterio-sclerosis is compensatory, I would object that the use of the latter word bears a teleological implication that is unnecessary. Is not the excess of pabulum supplied to the arterial walls by reason of their constant dilatation, sufficient to account for the hypertrophic thickening?

Dr. Wightman: I do not think I can add anything to the doctor's paper, except that I can report a case which we had in the Marine Hospital in 1900. Dr. Gassaway, who was in command at the hospital at that time, favored the idea of its being arterio-sclerosis; but as he did not see the case until it had existed for some time, I am inclined to think that what arterio-sclerosis was present was subsequent to the original condition, which the doctor has told me is sometimes the case. The man was a sailor, and came to us for consumption. He had pretty bad lungs. The disease started while the man was in the hospital, and followed the course the doctor described pretty exactly. It started in the base of the right great toe and spread over the rest of the toes, and even some distance up the dorsum of the foot. We tried everything we could think of, but nothing gave him any permanent relief. Electricity relieved the pain for only a few minutes, and the only real relief he got was from iced lead and opium wash. We fixed up a kind of bath for him out of oilcloth, so that he could have the foot elevated and immersed in the mixture at the same time, and as long as the foot was being sponged with it, the pain was moderated, though I believe he never allowed that it entirely left him. On account of the continual suffering, affecting his general condition so badly, it was decided to amputate, and Dr. Stansfield removed the foot.

Dr. L. Allen: In the published reports of Mount Sinai Hospital, 1899, I thing there is one more case. In this case both feet were affected. One went on to gangrene of one or two toes; the other of toes and foot, so that in one case the toes were amputated, and the other foot amputated just above the knee. Patient freed from pain without recurrence, arteries showed marked arthritis, especially of retina. I have also in mind a case that recently occurred at St. Luke's Hospital. I was not aware at that time that the hands were affected in this disease. He had all the symptoms of Wier Mitchell's disease. He was a man fifty-six years old. Great pain started in shortly after he was recovering from an attack of pneumonia. The pain started in the finger tips, and in twenty-four hours they had become quite blue. We wrapped the fingers up, but they gave him excruciating pain for three or four days. This then gradually improved, although when the patient was discharged he still complained of some pain.

Dr. A. W. Perry read a paper entitled

THE USE OF ACIDS IN GASTRIC DISEASE AND A NEW METHOD OF GIVING HYDROCHLORIC ACID.

Dr. J. Mora Moss: As I understand the chemistry of stomach digestion, when we find that the stomach contents gives no reaction with dimethyl-amido-azo-benzol but turns blue litmus red, we have no free hydrochloric acid present, but the acid reaction is due to combined chlorides and other acid salts. The physiology of the stomach digestion, as I have always understood it, is that pepsin requires the presence of free hydrochloric acid in order to act on the proteid foods. Unless the hydrochloric acid frees itself in some way, from the acid proteids which the doctor prepares, I fail to see how they can have any effect on digestion, beyond that arising from the administration of what is probably a very easily digested form of food. The only way to prove this would be to feed a man a certain amount of proteids together with the doctor's preparation, and an hour later to remove the stomach contents, and see what we have. The effect of anything supposed to further digestion can only be purely conjectural without a quantitative analysis of the stomach contents.

Dr. D'Arcy Power: The question raised by the last speaker also occurred to me. As I understand Dr. Perry's statement his new menstruum for the administration of hydrochloric acid consists of 60 per cent of acid-saturated proteid, plus an excess of HCl, capable of saturating another 40 per cent. If, therefore, a patient were in the habit of receiving his nitrogenous food in the form of eight ounces of steak, he would by this method receive but three ounces of his steak and five ounces of Dr. Perry's compound; which seems an unpleasantly large proportion of medicine to food. Furthermore, it opens the question as to whether any benefit obtained is not due to the predigested proteid rather than to any further action of the substance on the injesta. As to the general question of the dosage of HCl, I have placed myself on record as an advocate of large, if not physiological, doses of acid. That such dosage is not the rule I discovered by an investigation I made some four years ago, into the character of the prescribing usual in this city. From an examination of several hundred prescriptions it was evident that the usual dosage was about five minims. This is physiologically useless. I will admit that test tube and stomach digestion are not the same thing, but I hold that reasonable approximation to physiological requirements should be aimed at. These large doses of hydrochloric acid should be freely diluted, and administered some forty minutes after meals. If given too soon they inhibit starch digestion, which experiment has demonstrated to normally continue for some time in the stomach.

Dr. Perry: The first speaker thinks free HCl necessary to digestion. This is an error. Geo. Hayem found by experiment that during the digestion of milk by healthy nurslings there was no free HCl present. Dr. E. Heinrich, of Munich, lately has made this experiment; he gives a healthy man, meat, boiled, and ground after being boiled. In one hour he raised the stomach contents, and found no free HCl. In my paper I have shown that I took one part of HCl and thirty parts of meat. One part of HCl and fifteen parts meat will destroy all the free acid. In the presence of pepsin an immense amount of digestion takes place. We know what can take place in a tube will take place much more easily in the stomach where it is subjected to vital action and constant motion. In regard to Dr Power, would we have to give this immense amount of proteid in order to get results? The daily amount of acid secreted in health where a person eats 235 grams of boiled meat, the amount that would be required to digest that, would be fifteen grams of strong liquid HCl. That is what the stomach ought to secrete in order to digest that amount of meat. In cases of stomach disease there may be a deficiency of 99 per cent. In cases of such deficiency we would have to give large amounts of organic HCl combined with proteids. It is not to be supposed that every case has a deficiency of 99 per cent. Other cases may have 5, 15, and 50 per cent, etc. We only want to give enough to make up the deficiency, and a man may get along for years without getting it at all. In my practice I am giving an amount of proteid now which contains fifteen to twenty drops of the strong HCl. I give it in combination with proteids. The more common cases are where we have to make up 25 or 50 per cent. The special use is where the HCl is absolutely absent and we have to stimulate the pancreas by the acid.

Dr. H. A. Johnson reported

CASES ILLUSTRATING NECESSITY OF MICROSCOPIC EXAMINATION OF TUMORS AT TIME OF OPERATION.

Dr. A. B. Grosse: The reports of Dr. Johnson simply emphasize the fact that routine microscopical examination at the time of operation is now absolutely necessary. This method is now and has been in vogue in all Continental clinics of moment, and I believe was particularly brought to its present efficiency by Pick, of Landau's clinic, Berlin. He was frequently able to rectify mistaken diagnoses where the surgeon judged only from the microscopical appearance of the growth. The time consumed for section, mounting, and examination should not exceed from eight to ten minutes in the hands of an experienced microscopist. For some time past I have voiced my surprise that our San Francisco surgeons have made use of this invaluable method so rarely.

Dr. P. M. Jones: In speaking of this question of microscopical diagnosis, there is a line of work in New York which is exceedingly interesting. A number of men are treating cancer cases with the X-ray, which is valuable incidentally in reference to the diagnosis. A patient with a cancerous condition when exposed to the X-ray will become very much better or worse. If it is fibroma the condition remains unaltered. This is simply culled from the experience of my friends there.

Dr. W. Winterberg: I do not know whether the fact that a tumor, found in the breast, does not give microscopical evidence of malignancy, should be taken as a reason for leaving it undisturbed by operative treatment. With our present pathological knowledge, we must admit that a benign tumor may sometimes change into a malignant one; such cases having been observed by others, and I had myself, not very long ago under observation, a case of sarcoma of the womb in which a complete destruction of the mucosa and the muscularis had taken place; the greatly distended cavity was filled with a semi-fluid mass of detritus in which there was floating a spherical body about the size of a chicken's egg, which under the microscope showed in places the characteristic formation of sarcoma, while in other sections taken from another part of this tumor only the elements of true fibroid growth were visible. Dr. Ophuls, who made the pathological examination, was decidedly of the opinion that in this case the starting point must have been a submucous fibroid which in course of time assumed a sarcomatous character. The clinical history of the case made it clear that, about six or seven years before the patient came under observation, there had been violent efforts on the part of the womb to expell the tumor, the pains being most severe at the time of menstruation; later, after the climacterium, and when the muscular fibers had been destroyed, patient had no symptoms for a number of years; the tumor became detached, and remained quietly in the womb until it was discovered on examining the pelvic organs.

THE CALIFORNIA ACADEMY OF MEDICINE.

Meeting, April, 1903.

The president, Douglas W. Montgomery, in the chair.

Dr. H. Kreutzmann presented a

BOSSI UTERINE DILATOR

and spoke as follows:—

This instrument has been tested in Italy, and has gained quite a foothold there. About two years ago the instrument was taken up by Professor Leopold. He recommended it, and for the last few months there has been a lively discussion in obstetrical literature about it. As usual, modifications were made. There has been favorable and adverse criticism in regard to it. Sometime ago I thought I would get the instrument. It is for obstetrical use only. It enables the obstetrician to deliver the woman quickly. Those who do obstetrical work, know that we often meet cases where it is necessary to deliver quickly and deliver without undue force. Typical cases of that sort are cases of eclampsia, when we have the womb entirely unprepared for delivery. The established principle here is to empty the uterus. We are a little up against it when we have cases without any labor at all, where the cervix shows no trace of opening. The means that we have, such as rubber bags, etc., are excellent to induce labor, especially for premature delivery, if we have time to spend on them. But for rapid dilation and delivery, these do not help us much. A number of years ago Duehrssen recommended for just such cases four deep cervical incisions right down to the insertion of the uterus on the vagina. He has praised that method a great deal. It is certainly a good method if we are in a hospital where we have all the necessary means to carry it out. Also the same writer has in later years spoken of the advantage of vaginal Cesarean section. He forces the bladder from the uterus, exposes a good deal of the cervix, and then splits the cervix into the uterine cavity and gains access. These operations are feasible in hospitals, but since 99 per cent of the confinements take place at home, this is not so easily performed. I once tried in a case of eclampsia to make these incisions, and I would hesitate to do that again. I thought when I heard the reports about this instrument, that it would be just the thing to have in these cases. I have not made any use of it, and what I know about it is only what I have read. (Dr. Moss asked why the corrugated ends were made loose). Dr. K. replied that the instrument could be used without them. (Dr. Terry asked what the results of this machine were with regard to laceration). Dr. K. replied that it was like the results in every natural confinement, there is a little laceration. There is danger if there is a beginning of laceration that the laceration be extended during extraction. It is better than the Barnes bag because it is quicker.

Dr. H. Kreutzmann read a paper on

CASUISTIC REPORT OF CASES OPERATED UPON AT THE GERMAN HOSPITAL.

[Published at page 180.]

Dr. J. Mora Moss: In regard to the drawing out of the round ligaments through the same incision made to get into the abdomen, I read a short time ago of an ingenious scheme. Instead of pulling the round ligaments through the inguinal ring, they are cut at their junction to the uterus, and the loose ends are sewed together behind it, forming a sort of sling by which the womb is drawn forward. In my own rather limited experience in laparotomies, I have found that where the uterus has been bound down by adhesions, and there have been inflammatory conditions of the tubes, necessitating their removal, and at the same time, of course, the adhesions were broken up, the womb would resume its original position without any particular manipulation. In the case reported by the doctor, in which he made a diagnosis of pelvic abscess and afterwards found a pus tube, I would like to ask at what stage of the operation that was discovered and how; how he came to the conclusion that there was a pus sac instead of diffuse pelvic abscess?

Dr. Dudley Tait: Several months ago when the subject of transverse incision was presented by Dr. Kreutzmann. I called attention to the occurrence of hematoma just outside the fascia, and the consequent slow healing of the wound. Such a condition may explain the slight serous discharge mentioned in some of Dr. Kreutzmann's cases. While in Bonn recently, I questioned several surgeons regarding transverse incision, and found that several had noted some difficulty in avoiding a dead space, and the occurrence of hematoma. These factors explain the decreasing popularity of the transverse incision. I would like to ask Dr. Kreutzmann to explain how the transverse incision can prevent hernia. The location of the skin incision, whether parallel or not with that of the fascia, is an unimportant factor in the causation of post-operative hernia.

Dr. F. B. Carpenter: I have nothing to say, only to urge the importance of always operating on extra-uterine cases when you are sure of your diagnosis. There are very few instances, when we have established the diagnosis with certainty, when one is justified in hesitating about operating, because we never know what is going to happen. It is safer to the patient to deal with these cases rather promptly.

H. Kreutzmann: In the first place, in regard to always shortening the round ligaments in abdomens. Certainly we do not want in every case of rectifying the position of the uterus, to enter the abdomen. In the great majority of cases where we want to shorten the round ligaments, we can do that without opening the abdomen. I am not afraid to open the abdomen, but do not do it without indications. In a great many cases we do not need to do anything to rectify the position of the uterus. The objection I think we should have to intra-abdominal shortening is that the weakest point of the ligament is the one in the canal, and on the outside. Any one who has done that operation knows that the end of the inguinal canal and outside, the ligament is very thin and frail, but if you go in a little the ligament becomes very thick. We can cut the very strongest part, and leave the weakest part on the outside. That seems to me the objection to intra-abdominal shortening of the round ligament. Under certain conditions it is the only thing left to do. In regard to diagnosis, as between simple pelvic abscess and afterward diagnosis of abscess of ovary and tube; when you have inflammation you can not make such a very thorough examination without anesthetic. In some cases the mass in Douglass' pouch is quite low down, and I have made the diagnosis of pelvic abscess, but when this patient was chloroformed, I found that the tube and ovary were involved; in others, I have found that the "mass" did not reach as far down, not down as the pelvic abscess does. I only made that transverse incision in two reported instances. My personal experience has shown me that there occurs in ordinary incision, the same serous, peculiar dicharge. This is above the aponeurosis. I do not say this incision will prevent hernia. It has occurred to me that infection might not take hold of the deeper cut if you have the skin incision parallel to the other one; if at one angle there develops a small abscess it will not reach the lower incision. This is a little safeguard against hernia. Some one recommended to make the incision of the skin on the side of the rectus muscle, then push the muscle to one side. and cut the fascia on the other side of the rectus, so that the two incisions were not one above the other. Now the matter of extra-uterine pregnancy; it is too big a subject to talk upon to-night. It proves to me that a woman may well recover with ruptured extra-uterine pregnancy.

Dr. J. Henry Barbat read a paper on

THE REPAIR OF VENTRAL HERNIAS AND A WORD AS TO THEIR PREVENTION.

[Published at page 205].

Dr. Dudley Tait: While it might seem more proper to wait much more than three weeks before reporting a case of radical cure of post-operative hernia, I am pleased to note the practical manner in which Dr. Barbat treats such troublesome cases. I most always favor entering the abdomen through the rectus at about 1 c. m. from the median line. This method is of especial value in suppurative cases requiring drainage. When, in such cases, the gauze or the tube is removed, the wall seldom remains weak at the point of drainage. One advantage of interrupted sutures on the fascia is the avoidance of dead spaces. Radical cure of post-operative hernia is easy when the edges of the fascia can be approximated. When this becomes impossible, Phelp's silver filigree proves valuable. Witzel, of Bonn, uses several yards of fine silver wire (called filigree in Germany) in the repair of all hernias. I was permitted to examine several of his recent and old cases, and found a marked, persisting infiltration in all cases; there was, however, no tenderness.

Dr. Kreutzmann: A great many different methods have been brought forward to remedy this condition. I have always done about the same operation that Dr. Barbat has described. The principal thing is to dissect out at the second operation the layers as they were at the first operation, and get them into apposition. There was something said about how to enter the abdomen. I always try to get into the abdomen in the median line. I can see no more hernia resulting from that than from the other way. Dr. Weil, of the German Hospital, warned me against cutting through any rectus muscle, and opening the abdomen through that. If, when I open the abdomen, I open one sheath of the rectus, and the other remains unopened, I usually unsheath the other, too, and stitch the muscles directly together. The reason that Dr. Weil warned me is that the nerve supply is entirely lateral to the rectus muscle, and if you separate any part, then that part which lies median from your incision becomes atrophied, because you cut through all the nerve supply. The main point, as Dr. Barbat has said, is to be absolutely aseptic, and to suture carefully, and I never rely upon running sutures. I have given that up. I use buried interrupted sutures. If I have been successful in avoiding infection, and no sloughing takes place, then even if under the skin and fat some exudation occurs of serous character, it does not interfere with the good result. The point which I have emphasized before, and in which I believe very much, is the early evacuation of the bowels, not allowing any collection of gas. That causes great tension on the sutures. If the patient is operated on in the morning, in the evening I turn her on her side, and later in the evening I put in the rectal tube.

Dr. W. I. Terry: For some years Kocher has advocated an incision which is somewhat on the lines Dr. Kreutzmann mentioned. The anterior sheath of the rectus is opened about 1 c. m. from the median line, the rectus muscle itself is pushed over, and the posterior sheath is then opened. Thus you avoid any injury to the rectus, and have the additional advantage of two layers of aponeurosis instead of one in the median line. I have used this a number of times, and it seems to me very satisfactory. I do not hesitate to enter the median line in these cases, nor do I hesitate to go through some portion of the rectus. I do not think the muscle will atrophy. I do not think 1 c. m. will make that result. Regarding the suture spoken of by Dr. Tait; I think it will be found to act as a foreign body in a large proportion of cases, and require removal. The principle does not seem rational in view of our experience with buried wire sutures.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

JANUARY, 1903.

The president, Dr. Louis C. Deane, in the chair.

DR. ROBERT COHN ON A CASE OF COCAIN POISONING.

Dr. Robert Cohn: I wish to report briefly a case of acute cocain poisoning. It was that of a young man about twenty years of age. Other than having just recovered from an attack of bronchitis, he was in very good health. Upon examination I found a spur of bone of the septum. Removed it with regular nasal saw. I used a 12 per cent solution, and applied the cocain on cotton to the nose frequently for some time. I warned the patient to be very careful not to swallow any. Just as the operation was finished, he turned very pale, and said he felt dizzy. Immediately put him into bed, and, almost quicker than I can tell it, he was in a state of collapse. In the next few minutes, the pulse ran up to 150 and 160, respiration as high as 50, 55, and 60, showing signs of extreme collapse. He almost died. Gave him 1-20 grain of strychnin. Respiration more regular and slower. He complained of pain in breathing and feeling suffocated. For three hours he was between life and death. We thought every minute we would lose him. Repeated 1-20 grain of strychnin and strong coffee enemata, keeping him awake. It was between three and three and a half hours before we could leave him with safety.

Dr. Eaton: I happen to be old enough to have worked before cocain had been discovered. Can remember when the first of it came to this country. The first patient I used it on, after giving her perhaps a 4 per cent solution, collapsed, and I thought she was going to die. Now I frequently use a 20 per cent solution, and have not had an accident. One early case was an old man, to whom I gave a 15 per cent solution and whisky. Met a dentist about that time who said I would probably kill some one. Have not yet, and now I use 20 per cent. I believe two things in regard to this: First, the psychical condition. Personally, I am extremely susceptible to cocain. Am intoxicated by it after just a few moments. Second, would not use strychnin, but some stimulant. This case of Dr. Cohn's seems to me to be psychical.

Dr. Deane: To state whether collapse is due to the local anesthetic or not is sometimes puzzling. There is no question that collapse can occur from psychic influences, whether of fear or a reflex from the local irritation of a nerve. It would seem from Dr. Cohn's description that his case was clearly the result of the toxic influence of the drug, as the symptoms were marked and profound, yet there are few of us who can not state similar cases of a much milder character, the result of mere aural or nasal application where no anesthetic was used.

Dr. Powers: Dr. Cohn's patient probably collapsed from swallowing the solution, but, as a rule, I think the collapse is more from the idea of an operation than from the cocain. A patient seldom faints from a moderate solution. I begin with a 10 per cent solution, and keep increasing the strength until the patient is entirely under it influence.

Dr. Burnett: I think the best method is by electrolysis, and then give a 5 per cent solution of cocain up to 5 mm. This will render the operation absolutely painless. Remember the case of a man who was to have a nasal operation. The cocain was given, and quite an operation was performed with no pain. But after the operation was all over, there was extreme collapse. This, doubtless, was due to a psychical condition. In regard to the strength of the solution, 10 and 20 per cent solutions are seldom found necessary. I prefer an 8 per cent solution.

DIONIN.

Dr. Redmond Payne: The use of dionin in diseases of the eye, I believe, was first reported by Darier, of Paris; at any rate, it was upon the suggestions made by him that I began its use. So far as I can learn, neither he nor any one else has made anything like an extended report upon its therapeutic value, and what I have to say to-night is not in the nature of complete conclusions, but simply a few clinical hints as to the effects I have found in its use. I hope, as time goes on, to make a more methodical and complete test of its therapeutic value in diseases of the eye. Dionin is a derivative of morphin, and has been used successfully as a substitute for both it and codein as a general analgesic, the claim being made that it has narcotic and sedative effects without their disadvantages. My experience with it has been in diseases of the cornea and conjunctiva only. I use it in 4 and 7 per cent solutions, placing two or three drops above the cornea, which then run down over it. I used it primarily for its local analgesic effect, but found later that it produced more than the analgesia. The only remedy we have had to relieve the pain caused by corneal disease has been cocain, which, if used continuously, produces a bad effect on the epithelium, thereby affecting the nutritive process and repair. Further, the anesthetic effect of cocain is only temporary, and must be repeated. For all the painful conditions of the cornea where an analgesic is indicated, two or three drops of dionin, used in one of the above strengths, depending on the severity of the pain, will produce analgesia and complete relief from pain for from 24 to 72 hours. Further, if the condition is an erosion, an ulceration, or a laceration of the corneal tissue, its repair is aided. If it is an infiltration, or serous exudation, it will hasten its resorption, and have the same effect upon all inflammatory products within the cornea or around it. In several cases where the cornea was lacerated both superficially and deeply, the pain from which was very severe, causing a great amount of local and supra-orbital pain, two or three drops of a 4 or 7 per cent solution, after the eye had been properly cleansed, gave splendid and prolonged analgesia and complete relief from all severe pain. In ulcerations of the cornea, both superficial and deep, a 4 per cent solution has accomplished the same result, in addition to hastening its repair. In a serpiginous ulcer the pain and progress were immediately arrested by two or three drops of a 4 per cent solution used once daily. In a case of abscess of the cornea involving two-thirds of its extent, with great pain and continued advance of the disease, two or three drops of a 4 per cent solution, daily, had the same effect of changing the progress to that of repair. The phlyctenulae and their ulcers are favorably influenced and pain relieved in children by a 4 per cent solution, a drop once or twice a day. In a case of trachoma with dense pannus, two or three drops of a 4 per cent solution, used daily, together with appropriate treatment to the lids, has nearly cleared the cornea. Now, in the above cases wherever there was photophobia and lacrimation, both were very greatly or completely relieved, to the extent that the eye was left free of the excess of secretion, in fact quite dry. As for the manner in which these effects are brought about, Lunewski, in the Wochenscrift for "Therapie and Hygiene," gives an explanation that seems to apply, viz., "it produces a more abundant flow of blood plasma in the stream, and the result is that a certain amount of pressure is exerted upon the yielding walls of the veins, and we have, as a result of this, venus stasis and an acceleration of the lymph circulation throughout the eyeball. The pressure which is exerted upon the veins is also exerted upon the nerves, and we have a certain amount of paresis, which explains the analgesic effect. It is contraindicated in old people with arteriosclerosis."

Dr Deane: Dr. Payne's experience with dionin has been most interesting, and, though my experience with the drug has been more limited, I can not but speak of this new and altogether unique derivative of morphin. It is essentially an eye drug, for its use in other parts of the body has not been followed by the same results. This is apparent for several reasons. First, because its action upon the lymphatic circulation is so marked. (The eye is the most perfect example of lymph circulation in the body, especially the cornea, on which dionin has such a marked effect.) Its antiseptic power can only be demonstrated here, as this action is produced only secondarily, through the stimulation of the flow of tears and of the lymphatic circulation within the tissues. Dr. Payne only gives his own experience of its use in diseases of the cornea, but to stop here would be to limit its action. It has been favorably spoken of in connection with detachment of the retina due to serous effusion, also Gottschalk mentions it with retrobulbar neuritis, comparing it to heat, both of which affect the circulation of lymph. Its use in glaucoma with a myotic has been highly spoken of, not only to relieve the pain immediately, but as a curative agent. I have used dionin in combination with atropin in a case of subacute cyclitis, where the pain and deposit in the anterior chamber were notable symptoms. This drug has been mistaken and used instead of local anesthetics; of course, with disappointment, as it is distinctly not an anesthetic, but an analgesic.

ACUTE GLAUCOMA AN INITIAL SYMPTOM IN TYPHOID.

Dr. Brady: The case that I wish to present is that of a woman normally delivered of twins. She passed through an uneventful puerperium of twenty-one days; although still weak, attended to her household cares for the ensuing two weeks. On Sunday she partook of a full evening meal. About five hours later her medical attendant was summoned, and found her in the following condition: Temperature 102.5 degrees Fahr.; greatly exhausted from persistent vomiting; unable to raise right arm; both wrists swollen and showing purpuric nodules. The left eyelids were markedly swollen, almost to closure, with strongly bulging chemotic conjunctiva. He gave her repeated hot applications to the eye, but the pain not subsiding after twenty-four hours, called me in. The temporal pain was then intense, lids markedly inflamed and edematous, the gelatinous and strongly hyperemic conjunctiva bulging 2 mm. forward and overlapping limbus 1 mm.; marked ciliary pain. Iris dirty green color; pupil medium dilation, immobile: A. C. deepened; T——2; light projection poor; light perception limited to shadow outlines. Marked yellowish green vitreous halo, no fundus detail; instillation of eserin resulted in reduction of tension to —0.5, and great relief of pain (hot compresses continued). Typical typhoid curve led to widal test, which was positive on tenth day. Positive diazo: B, typhi obtained in pure culture from cephalic vein; marked anemia, reds to 1,250,000, hemaglobin 35 to 40 per cent; bacteriological examination of genital tract and urine negative; asthenic symptoms and fever increased, exitus lethalis on fifteenth day. No autopsy allowed.

BOOK REVIEWS.

"Surgical Emergencies," The Surgery of the Head. By Bayard Holmes, B. S., M. D., professor of surgery in the University of Illinois, professor of clinical surgery in the American Medical Missionary College, Chicago, attending surgeon the Chicago Baptist Hospital. New York. D. Appleton & Company, 1903. This volume, but one of a series of books on surgery, is of median size, 600 pages, containing 90 illustrations and 14 plates. In this work the author makes use of an arrangement of the contents which he has carefully followed out, and a reading of the book will convince the casual reader as well as the student of the excellence of this plan. Pathology, diagnosis, and proper methods of treatment are all given their due place and prominence, but this is more in narrative style than the pursuit of didactic form. Careful and concise history taking and clinical observation are recommended for the student and practitioner. This volume and the rest of the series when published should be in the hands of the practitioner. The book is well indexed, and paper and binding are very satisfactory.

"Diseases of the Heart and Arterial System," designed to be a practical presentation of the subject for the use of students and practitioners of medicine. By Robert H. Babcock, A. M., M. D., professor of clinical medicine and diseases of the chest, College of Physicians and Surgeons, Medical Department of the University of Illinois, Chicago; attending physician to Cook County Hospital and Cook County Hospital for Consumptives; consulting physician to Mary Thompson Hospital, Hospital of St. Anthony de Padua, and of Marion-Sims Sanitarium; fellow and former president of the American Climatological Association; member of the American Medical Association, etc. With 3 colored plates and 139 illustrations. New York and London. D. Appleton & Company, 1903. Styles in books change not in binding and print alone, but in the manner in which the subject matter is presented and the amount of padding that is employed. The newer books are omitting unprofitable theories and detailed descriptions, whose value is doubtful under any circumstances, but if employed in the modern single-volume works detracts from their value, by making them too bulky and giving too much chaff with the wheat of essential, practical facts. The wheat, chaff omitted, padding left out, is to be found in this volume on diseases of the heart and arterial system. In arrangement it is excellent, the cuts making clear by excellent representations the meaning of the text, and just enough of anatomy and physiology of the parts under discussion to render clear the understanding of the subject matter. Treatment in many instances is given scant consideration, the diagnosis and the pathology of the parts being considered of principal importance. While this is not denied in the volume under discussion, treatment is accorded special attention, which gives the work a practical value. The phraseology is simple, and the terms used are familiar. The table of contents and index make speedy reference to any subject easy.

"The Practical Treatment of Stammering and Stuttering," with Suggestions for Practice and Helpful Exercises. By George Andrew Lewis, originator of the Lewis phonometoic method, founder and principal of the Lewis School for Stammerers, editor of the "Phono-Meter," lecturer, author, and speech specialist. And a "Treatise on the Cultivation of the Voice," with a discussion of principles and suggestions for practice. By George B. Hynson, M. A., late principal of the National School of Elocution and Oratory, instructor in public speaking in the University of Pennsylvania, lecturer, author, and voice specialist. Illustrated. Detroit. George Andrew Lewis, 1902. Two teachers have collaborated in the production of this book, which contains in its first part methods of treatment for defective speech found efficient by one of its authors, while the second portion of the book is devoted to selections for practice.

The "Physicians' Visiting List," for 1903. Lindsay, Blakiston's, P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia, Pa. Price one dollar. In its fifty-second year this little book shows improvement over its predecessors. Its contents, in addition to the necessary number of pages for visits, memoranda, etc., contains three pages of incompatibility, one on poisons and antidotes, dosage table, treatment of asphyxia and apnea, table for thermometric comparison, table for computing periods of uterogestation. It is well bound, with tuck, pencil, and pocket, and is of convenient size.

"How to Succeed in the Practice of Medicine," by Jospeh McDowell Mathews, M. D., LL. D., president of American Medical Association, 1898 to 1899, author of "Mathews on Disease of the Rectum," ex-president Mississippi Valley Medical Association, Kentucky State Medical Society, American Proctologic Society, etc. Louisville, John P. Morton Company, 1902. This little volume, from the pen of the well-known author and teacher, Dr. J. M. Mathews, will be read with pleasure and profit by those who hope to succeed in the practice of the medical profession. This work is the reduction to writing of lectures delivered to the students of the school in which the author has taught. The book is divided into twelve chapters, under the interesting headings, some of which are, Location, Ethics, and the First Year, The Business Side of It, The Young versus the Old Doctor, Art in Medicine, Lights and Shadows. These and the others are dealt with in excellent English, and, while art in medicine is treated fully, the business side of medicine is brought to the attention, and reasons adduced for the doctor being as good a collector as he is a physician. This volume will certainly be a help to the young man who wishes to learn how from one who has succeeded.

"The Mattison Method in Morphinism, a Modern and Humane Treatment of the Morphin Disease," by J. B. Mattison, M. D., medical director Brooklyn Home for Narcotic Inebriates. Published for the author. E. B. Treat & Co., New York, 1902. Price one dollar. The author, in forty pages, requiring an hour to read, gives his successful effects of the treatment of these cases after thirty years' experience in dealing with drug habituates in public institutions. The plan advocated is continued dosage with the bromides, principally sodium, with gradual withdrawal of the opiates. Emergencies and contingencies in the proper management of these cases are dealt with.

The New York Pharmacal Association, Yonkers, N. Y., are presenting an artistic little calendar to the profession, which calendar, in folder form, contains portraits of eminent physicians, both of ancient and modern times. The calendar embraces the period from October, 1902, to September, 1903, inclusive.

The "Bulletin," a quarterly medical review, which has been published since 1892 by the American Medical Temperance Association, has been consolidated with the "Journal of Inebriety." The latter journal, which first appeared in 1876, under the editorial care of Dr. T. D. Crothers, of Hartford, Conn., was the first, and is still the only, medical periodical in the world devoted exclusively to the scientific study of the neurosis and psychosis of spirit and drug diseases.